



**INORGANIC  
VENTURES**

300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com

# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

QC COPPER STD 1K PPM IN 3% NIT



130125M

- 1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM 1000 µg/mL Copper in 3% (v/v) HNO<sub>3</sub>**

Catalog Number: CGCU1-1, CGCU1-2, and CGCU1-5  
Lot Number: **E2-CU02130**  
Starting Material: Cu shot  
Starting Material Purity (%): 100.0000  
Starting Material Lot No: 1612  
Matrix: 3% (v/v) HNO<sub>3</sub>

**Expires**

**1-Feb-2014**

**3.0 CERTIFIED VALUES AND UNCERTAINTIES**

**Certified Concentration:** 1,002 ± 5 µg/mL - weighted mean

**Certified Density:** 1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 [(\sum s_i^2)]^{1/2}}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

**4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

• "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

• This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

**4.1 Assay Method #1 1,001 ± 3 µg/mL**  
ICP Assay NIST SRM 3114 Lot Number: 011017

**Assay Method #2 1,003 ± 3 µg/mL**  
EDTA NIST SRM 928 Lot Number: 928



**INORGANIC  
VENTURES™**

300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com



**CERTIFICATE OF ANALYSIS**

tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

- 1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



- 2.0 DESCRIPTION OF CRM**      **1000 µg/mL Iron in 2% (v/v) HNO<sub>3</sub>**
- Catalog Number:      CGFE1-1, CGFE1-2, and CGFE1-5
- Lot Number:      **F2-FE04014**
- Starting Material:      Fe pieces
- Starting Material Purity (%):      99.9969
- Starting Material Lot No:      1602, 1618
- Matrix:      2% (v/v) HNO<sub>3</sub>

**Expires**  
**1-Feb-2014**

### 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Concentration:**      1,002 ± 5 µg/mL - weighted mean

**Certified Density:**      1.009 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of  $k = 2$ .

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

$n$  = number of measurements

$$\text{Uncertainty } (\pm) = 2 \left[ \sum (s_i)^2 \right]^{1/2}$$

2 = the coverage factor.

$\left[ \sum (s_i)^2 \right]^{1/2}$  = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

### 4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

• "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

• This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- 4.1 Assay Method #1**      **1,001 ± 3 µg/mL**  
ICP Assay NIST SRM 3126a Lot Number: 051031
- Assay Method #2**      **1,003 ± 3 µg/mL**  
EDTA NIST SRM 928 Lot Number: 928

**1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM**      **10000 µg/mL Iron in 5% HNO<sub>3</sub>**

Catalog Number:      CGFE10-1, CGFE10-2, and CGFE10-5

Lot Number:      **F2-FE04007**

Starting Material:      Fe pieces

Starting Material Purity (%):      99.9972

Starting Material Lot No:      1618

Matrix:      5% HNO<sub>3</sub>

**Expires**  
**1-Feb-2014**

### 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Concentration:**      9991 ± 51 µg/mL

**Certified Density:**      1.047 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = 2 \left[ \sum (s_i)^2 \right]^{1/2}$$

2 = the coverage factor.

$\left[ \sum (s_i)^2 \right]^{1/2}$  = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

### 4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

• "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

• This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

**4.1 Assay Method #1**      **9978 ± 31 µg/mL**  
ICP Assay NIST SRM 3126a Lot Number: 051031

**Assay Method #2**      **10,010 ± 25 µg/mL**  
EDTA NIST SRM 928 Lot Number: 928



- 1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



- 2.0 DESCRIPTION OF CRM**      **1000 µg/mL Gadolinium in 7% (v/v) HNO<sub>3</sub>**
- Catalog Number:      CGGD1-1, CGGD1-2, and CGGD1-5
- Lot Number:      **F2-GD01047**
- Starting Material:      Gd<sub>2</sub>O<sub>3</sub>
- Starting Material Purity (%):      99.9988
- Starting Material Lot No:      1675
- Matrix:      7% (v/v) HNO<sub>3</sub>

**Expires**
**1-Feb-2014**

### 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Concentration:**      999 ± 5 µg/mL - weighted mean

**Certified Density:**      1.036 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of  $k = 2$ .

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

$n$  = number of measurements

$$\text{Uncertainty } (\pm) = 2 \left[ \sum (s_i)^2 \right]^{1/2}$$

2 = the coverage factor.

$\left[ \sum (s_i)^2 \right]^{1/2}$  = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

### 4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- 4.1 Assay Method #1**      **1,001 ± 3 µg/mL**  
EDTA NIST SRM 928 Lot Number: 928
- Assay Method #2**      **997 ± 3 µg/mL**  
ICP Assay NIST SRM 3118a Lot Number: 992004





**INORGANIC  
VENTURES**

300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com

QC-MERCURY STD 1K ppm IN 3.3% HNO<sub>3</sub>



1301250

CERTIFICATE OF ANALYSIS

tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

- 1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM 1000 µg/mL Mercury in 5% (v/v) HNO<sub>3</sub>**

Catalog Number: CGHG1-1, CGHG1-2, and CGHG1-5  
Lot Number: **F2-HG02096**  
Starting Material: Hg metal  
Starting Material Purity (%): 100.0000  
Starting Material Lot No: R307HGA1  
Matrix: 5% (v/v) HNO<sub>3</sub>

**Expires**

**1-Feb-2014**

**3.0 CERTIFIED VALUES AND UNCERTAINTIES**

**Certified Concentration:** 1,002 ± 6 µg/mL - weighted mean

**Certified Density:** 1.025 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = 2 \left[ \sum (s_i)^2 \right]^{1/2}$$

2 = the coverage factor.

$\left[ \sum (s_i)^2 \right]^{1/2}$  = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

**4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

**4.1 Assay Method #1 1000 ± 4 µg/mL**

ICP Assay NIST SRM 3133 Lot Number: 061204

**Assay Method #2 1006 ± 3 µg/mL**

EDTA NIST SRM 928 Lot Number: 928



**INORGANIC  
VENTURES**

300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com

QC POTASSIUM STANDARD 1000 µg/mL PPM IN 0.1% NI<sub>3</sub>  
130125R



tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

- 1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



- 2.0 DESCRIPTION OF CRM**      **1000 µg/mL Potassium in 0.1% (v/v) HNO<sub>3</sub>**
- Catalog Number:      CGK1-1, CGK1-2, and CGK1-5
- Lot Number:      **E2-K03026**
- Starting Material:      KNO<sub>3</sub>
- Starting Material Purity (%):      99.9981
- Starting Material Lot No:      B19P01
- Matrix:      0.1% (v/v) HNO<sub>3</sub>

**Expires**

**1-Feb-2014**

### 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Concentration:**      999 ± 5 µg/mL - weighted mean

**Certified Density:**      1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 [(\sum s_i^2)]^{1/2}}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

### 4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

• "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

• This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- 4.1 Assay Method #1**      **998 ± 3 µg/mL**  
ICP Assay NIST SRM 3141a Lot Number: 051220

- Assay Method #2**      **1,000 ± 2 µg/mL**  
Gravimetric NIST SRM Lot Number: See Sec. 4.2



**1.0** **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0** **DESCRIPTION OF CRM**      **10000 µg/mL Potassium in 2% (v/v) HNO<sub>3</sub>**

Catalog Number: CGK10-1, CGK10-2, and CGK10-5

Lot Number: **F2-K03029**

Starting Material: KNO<sub>3</sub>

Starting Material Purity (%): 99.9981

Starting Material Lot No: B19P01

Matrix: 2% (v/v) HNO<sub>3</sub>

**Expires**  
**1-Feb-2014**

**3.0** **CERTIFIED VALUES AND UNCERTAINTIES**

**Certified Concentration:** 9,979 ± 55 µg/mL - weighted mean

**Certified Density:** 1.024 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = 2 \left[ \sum (s_i)^2 \right]^{1/2}$$

2 = the coverage factor.

$\left[ \sum (s_i)^2 \right]^{1/2}$  = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

**4.0** **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

**4.1**      **Assay Method #1**      **9,981 ± 40 µg/mL**

ICP Assay NIST SRM 3141a Lot Number: 051220

**Assay Method #2**      **9,971 ± 18 µg/mL**

Gravimetric NIST SRM Lot Number: See Sec. 4.2



- 1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM 1000 µg/mL Lithium in 0.1% (v/v) HNO<sub>3</sub>**

Catalog Number: CGLI1-1, CGLI1-2, and CGLI1-5  
Lot Number: **F2-LI02144**  
Starting Material: Li<sub>2</sub>CO<sub>3</sub>  
Starting Material Purity (%): 99.9989  
Starting Material Lot No: 1312  
Matrix: 0.1% (v/v) HNO<sub>3</sub>

**Expires**  
**1-Feb-2014**

**3.0 CERTIFIED VALUES AND UNCERTAINTIES**

**Certified Concentration:** 1,000 ± 6 µg/mL - weighted mean

**Certified Density:** 1.005 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = 2 \left[ \sum (s_i)^2 \right]^{1/2}$$

2 = the coverage factor.

$\left[ \sum (s_i)^2 \right]^{1/2}$  = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

**4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

• "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

• This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

**4.1 Assay Method #1 1000 ± 4 µg/mL**

ICP Assay NIST SRM 3129a Lot Number: 000505

**Assay Method #2 998 ± 2 µg/mL**

Gravimetric NIST SRM Lot Number: See Sec. 4.2



**INORGANIC  
VENTURES™**

300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com

# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

QC MAGNESIUM STD 1K PPM IN 1% N



1301251

- 1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM 1000 µg/mL Magnesium in 0.1% (v/v) HNO<sub>3</sub>**

Catalog Number: CGMG1-1, CGMG1-2, and CGMG1-5  
Lot Number: **E2-MG03105**  
Starting Material: Mg metal  
Starting Material Purity (%): 99.9998  
Starting Material Lot No: 1484  
Matrix: 0.1% (v/v) HNO<sub>3</sub>

**Expires**  
**1-Feb-2014**

**3.0 CERTIFIED VALUES AND UNCERTAINTIES**

**Certified Concentration:** 1,001 ± 5 µg/mL - weighted mean

**Certified Density:** 1.003 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 [(\sum s_i^2)^{1/2}]}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

**4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

• "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

• This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- 4.1 Assay Method #1** 1,001 ± 3 µg/mL  
ICP Assay NIST SRM 3131a Lot Number: 050302
- Assay Method #2** 1,000 ± 3 µg/mL  
EDTA NIST SRM 928 Lot Number: 928



**INORGANIC  
VENTURES™**

300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com

QC MAGNESIUM STD 10K PPM IN 1.4%



# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

**1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM 10000 µg/mL Magnesium in 2% (v/v) HNO<sub>3</sub>**

Catalog Number: CGMG10-1, CGMG10-2, and CGMG10-5

Lot Number: **E2-MG03106**

Starting Material: Mg metal

Starting Material Purity (%): 99.9998

Starting Material Lot No: 1484

Matrix: 2% (v/v) HNO<sub>3</sub>

**Expires**  
**1-Feb-2014**

## 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Concentration:** 10,000 ± 54 µg/mL - weighted mean

**Certified Density:** 1.053 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 [(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

## 4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

• "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

• This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

**4.1 Assay Method #1 9,999 ± 38 µg/mL**

ICP Assay NIST SRM 3131a Lot Number: 050302

**Assay Method #2 10,001 ± 26 µg/mL**

EDTA NIST SRM 928 Lot Number: 928



**INORGANIC  
VENTURES**

300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com

# CERTIFICATE OF ANALYSIS

QC MANGANESE STD 1K PPM IN 2% HNO<sub>3</sub>



130125W

tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

- 1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM 1000 µg/mL Manganese in 3% (v/v) HNO<sub>3</sub>**

Catalog Number: CGMN1-1, CGMN1-2, and CGMN1-5  
Lot Number: **E2-MN02093**  
Starting Material: Mn pieces  
Starting Material Purity (%): 99.9940  
Starting Material Lot No: 1573  
Matrix: 3% (v/v) HNO<sub>3</sub>

**Expires**  
**1-Feb-2014**

**3.0 CERTIFIED VALUES AND UNCERTAINTIES**

**Certified Concentration:** 999 ± 5 µg/mL - weighted mean

**Certified Density:** 1.017 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 [(\sum s_i^2)^{1/2}]}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

**4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

• "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

• This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- 4.1 Assay Method #1 998 ± 3 µg/mL**  
ICP Assay NIST SRM 3132 Lot Number: 050429
- Assay Method #2 1,000 ± 3 µg/mL**  
EDTA NIST SRM 928 Lot Number: 928



**INORGANIC  
VENTURES**

300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com

QC MOLYBDENUM STD 1K PPM IN H<sub>2</sub>O



130125X

STATE OF ANALYSIS

tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

- 1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM 1000 µg/mL Molybdenum in H<sub>2</sub>O / tr. NH<sub>4</sub>OH**

Catalog Number: CGMO1-1, CGMO1-2, and CGMO1-5  
Lot Number: **E2-MO02046**  
Starting Material: (NH<sub>4</sub>)<sub>6</sub>Mo<sub>7</sub>O<sub>24</sub>•xH<sub>2</sub>O  
Starting Material Purity (%): 99.9999  
Starting Material Lot No: P704MOA1  
Matrix: H<sub>2</sub>O / tr. NH<sub>4</sub>OH

**Expires**  
**1-Feb-2014**

**3.0 CERTIFIED VALUES AND UNCERTAINTIES**

**Certified Concentration:** 999 ± 5 µg/mL - weighted mean

**Certified Density:** 1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 [(\sum s_i^2)]^{1/2}}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

**4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

**4.1 Assay Method #1 997 ± 3 µg/mL**  
ICP Assay NIST SRM 3134 Lot Number: 891307

**Assay Method #2 1,001 ± 3 µg/mL**  
Calculated NIST SRM Lot Number: See Sec. 4.2





- 1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM 1000 µg/mL Sodium in 0.1% (v/v) HNO<sub>3</sub>**

Catalog Number: CGNA1-1, CGNA1-2, and CGNA1-5  
Lot Number: **F2-NA03098**  
Starting Material: Na<sub>2</sub>CO<sub>3</sub>  
Starting Material Purity (%): 99.9999  
Starting Material Lot No: C18157  
Matrix: 0.1% (v/v) HNO<sub>3</sub>

**Expires**  
**1-Feb-2014**

**3.0 CERTIFIED VALUES AND UNCERTAINTIES**

**Certified Concentration:** 1,003 ± 5 µg/mL - weighted mean

**Certified Density:** 1.001 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = 2 \left[ \sum (s_i)^2 \right]^{1/2}$$

2 = the coverage factor.

$\left[ \sum (s_i)^2 \right]^{1/2}$  = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

**4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

**4.1 Assay Method #1 1,003 ± 4 µg/mL**  
ICP Assay NIST SRM 3152a Lot Number: 010728

**Assay Method #2 1,002 ± 2 µg/mL**  
Gravimetric NIST SRM Lot Number: See Sec. 4.2



- 1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



- 2.0 DESCRIPTION OF CRM**      **10000 µg/mL Sodium in 2% (v/v) HNO<sub>3</sub>**
- Catalog Number:      CGNA10-1, CGNA10-2, and CGNA10-5
- Lot Number:      **F2-NA03103**
- Starting Material:      Na<sub>2</sub>CO<sub>3</sub>
- Starting Material Purity (%):      99.9995
- Starting Material Lot No:      1628
- Matrix:      2% (v/v) HNO<sub>3</sub>

**Expires**  
**1-Feb-2014**

### 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Concentration:**      9,992 ± 53 µg/mL - Weighted mean

**Certified Density:**      1.034 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = 2 \left[ \sum (s_i)^2 \right]^{1/2}$$

2 = the coverage factor.

$\left[ \sum (s_i)^2 \right]^{1/2}$  = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

### 4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- 4.1 Assay Method #1**      **9,990 ± 36 µg/mL**  
ICP Assay NIST SRM 3152a Lot Number: 010728
- Assay Method #2**      **10,004 ± 16 µg/mL**  
Gravimetric NIST SRM Lot Number: See Sec. 4.2



**1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM 1000 µg/mL Nickel in 2% (v/v) HNO<sub>3</sub>**

Catalog Number: CGNI1-1, CGNI1-2, and CGNI1-5  
Lot Number: **E2-NI02074**  
Starting Material: Ni pieces  
Starting Material Purity (%): 99.9998  
Starting Material Lot No: 1559  
Matrix: 2% (v/v) HNO<sub>3</sub>

**Expires**  
**1-Feb-2014**

**3.0 CERTIFIED VALUES AND UNCERTAINTIES**

**Certified Concentration:** 1,003 ± 5 µg/mL - weighted mean

**Certified Density:** 1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 [(\sum s_i^2)]^{1/2}}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

**4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

• "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

• This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

**4.1 Assay Method #1 1,002 ± 3 µg/mL**  
ICP Assay NIST SRM 3136 Lot Number: 000612

**Assay Method #2 1,003 ± 3 µg/mL**  
EDTA NIST SRM 928 Lot Number: 928



**INORGANIC  
VENTURES™**

300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com

# CERTIFICATE OF ANALYSIS

QC LEAD STD IN PPM IN 35% NIT



130125BB

tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

- 1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



- 2.0 DESCRIPTION OF CRM**      **1000 µg/mL Lead in 0.5% (v/v) HNO<sub>3</sub>**
- Catalog Number:      CGPB1-1, CGPB1-2, and CGPB1-5
- Lot Number:      **F2-PB03035**
- Starting Material:      Pb(NO<sub>3</sub>)<sub>2</sub>
- Starting Material Purity (%):      99.9998
- Starting Material Lot No:      1717
- Matrix:      0.5% (v/v) HNO<sub>3</sub>

**Expires**  
**1-Feb-2014**

### 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Concentration:**      1,001 ± 5 µg/mL - weighted mean

**Certified Density:**      1.002 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 [(\sum s_i^2)^{1/2}]}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

### 4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

• "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

• This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- 4.1 Assay Method #1**      **1,000 ± 3 µg/mL**  
ICP Assay NIST SRM 3128 Lot Number: 101026
- Assay Method #2**      **1,002 ± 3 µg/mL**  
EDTA NIST SRM 928 Lot Number: 928



**INORGANIC  
VENTURES™**

300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com

# CERTIFICATE OF ANALYSIS



tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

- 1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



- 2.0 DESCRIPTION OF CRM**      **1000 µg/mL Antimony in 1% (v/v) HNO<sub>3</sub> / 3% Tartaric Acid**
- Catalog Number:                      CGSB1-1, CGSB1-2 and CGSB1-5
- Lot Number:                              **F2-SB03010**
- Starting Material:                      Sb shot
- Starting Material Purity (%):      99.9974
- Starting Material Lot No:              1647
- Matrix:                                      1% (v/v) HNO<sub>3</sub> / 3% Tartaric Acid

**Expires**

**1-Feb-2014**

## 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Concentration:**      1,000 ± 5 µg/mL - weighted mean

**Certified Density:**              1.021 g/mL (measured at 20 ± 1°C)

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

$n$  = number of measurements

$$\text{Uncertainty } (\pm) = 2 \left[ \sum (s_i)^2 \right]^{1/2}$$

2 = the coverage factor.

$\left[ \sum (s_i)^2 \right]^{1/2}$  = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of  $k = 2$ .

## 4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

- "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)
- This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- 4.1 Assay Method #1**      **999 ± 3 µg/mL**  
ICP Assay NIST SRM 3102A Lot Number: 061229
- Assay Method #2**      **1,000 ± 3 µg/mL**  
Calculated NIST SRM Lot Number: See Sec. 4.2



- 1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



- 2.0 DESCRIPTION OF CRM**      **1000 µg/mL Antimony in 1% (v/v) HNO<sub>3</sub> / 3% Tartaric Acid**
- Catalog Number:                      CGSB1-1, CGSB1-2 and CGSB1-5
- Lot Number:                              **F2-SB03010**
- Starting Material:                      Sb shot
- Starting Material Purity (%):      99.9974
- Starting Material Lot No:              1647
- Matrix:                                      1% (v/v) HNO<sub>3</sub> / 3% Tartaric Acid

**Expires**

**1-Feb-2014**

### 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Concentration:**      1,000 ± 5 µg/mL - weighted mean

**Certified Density:**                      1.021 g/mL (measured at 20 ± 1°C)

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

$n$  = number of measurements

$$\text{Uncertainty } (\pm) = 2 \left[ \sum (s_i)^2 \right]^{1/2}$$

2 = the coverage factor.

$\left[ \sum (s_i)^2 \right]^{1/2}$  = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of  $k = 2$ .

### 4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

- "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)
- This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- 4.1      Assay Method #1      999 ± 3 µg/mL**  
ICP Assay NIST SRM 3102A    Lot Number: 061229
- Assay Method #2      1,000 ± 3 µg/mL**  
Calculated NIST SRM    Lot Number: See Sec. 4.2



**INORGANIC  
VENTURES™**

300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com



CATE OF ANALYSIS

tel: 800.659.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

- 1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



- 2.0 DESCRIPTION OF CRM**      **1000 µg/mL Scandium in 7% (v/v) HNO<sub>3</sub>**
- Catalog Number:              CGSC1-1, CGSC1-2, and CGSC1-5
- Lot Number:                    F2-SC02098
- Starting Material:              Sc<sub>2</sub>O<sub>3</sub>
- Starting Material Purity (%):    99.9914
- Starting Material Lot No:       1630A,B
- Matrix:                         7% (v/v) HNO<sub>3</sub>

**Expires**  
**1-Feb-2014**

### 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Concentration:**      1,004 ± 6 µg/mL - weighted mean

**Certified Density:**              1.043 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 [(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

### 4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

- "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)
- This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- 4.1 Assay Method #1**      **1,004 ± 3 µg/mL**  
ICP Assay NIST SRM 3148a Lot Number: 792111
- Assay Method #2**      **1,004 ± 3 µg/mL**  
EDTA NIST SRM 928 Lot Number: 928



**INORGANIC  
VENTURES**

300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com

QC SELENIUM 100 µg/mL IN 1.4% NT



130125FF

**CIFICATE OF ANALYSIS**

tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

**1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM 1000 µg/mL Selenium(+4) in 2% (v/v) HNO<sub>3</sub>**

Catalog Number: CGSE(4)1-1, CGSE(4)1-2, and CGSE(4)1-5

Lot Number: E2-SE02033

Starting Material: Se shot

Starting Material Purity (%): 99.9996

Starting Material Lot No: 1616

Matrix: 2% (v/v) HNO<sub>3</sub>

**Expires**

**1-Feb-2014**

**3.0 CERTIFIED VALUES AND UNCERTAINTIES**

**Certified Concentration:** 1,001 ± 6 µg/mL - weighted mean

**Certified Density:** 1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 [(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

**4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

**4.1 Assay Method #1 1,002 ± 4 µg/mL**

ICP Assay NIST SRM 3149 Lot Number: 100901

**Assay Method #2 1,000 ± 3 µg/mL**

Calculated NIST SRM Lot Number: See Sec. 4.2





**1.0** **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0** **DESCRIPTION OF CRM**      **1000 µg/mL Silica in 1% (v/v) HNO<sub>3</sub> / tr. HF**

Catalog Number:                      CGSIO1-1, CGSIO1-2, and CGSIO1-5

Lot Number:                              **E2-SI03009**

Starting Material:                      SiO<sub>2</sub>

Starting Material Purity (%):      99.9998

Starting Material Lot No:            1551

Matrix:                                    1% (v/v) HNO<sub>3</sub> / tr. HF

**Expires**  
**1-Feb-2014**

### 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Concentration:**      1,002 ± 5 µg/mL - no weighted mean

**Certified Density:**                1.006 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 \left[ \frac{(\sum s_i)^2}{n} \right]^{1/2}}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

### 4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

**4.1**                      **Assay Method #1**      **1,002 ± 3 µg/mL**

ICP Assay NIST SRM 3150 Lot Number: 071204



QC SIROFILM STD 1K PPM IN 1% N<sub>2</sub>



13012511

## DECLARATION OF ANALYSIS

info@inorganicventures.com

- 
- Testing Laboratory  
Certificate 883.01



- 1-Feb-2014

- ICP Assay NIST SRM 3153a Lot Number: 990906

- 1.0** **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM 1000 µg/mL Thorium in 4% (v/v) HNO<sub>3</sub>**

Catalog Number: CGTH1-1, CGTH1-2, and CGTH1-5  
Lot Number: **E2-TH01086**  
Starting Material: Th(NO<sub>3</sub>)<sub>4</sub>•4H<sub>2</sub>O  
Starting Material Purity (%): 99.9974  
Starting Material Lot No: X0033369-8 and X25828-7  
Matrix: 4% (v/v) HNO<sub>3</sub>

**Expires**
**1-Feb-2014**

**3.0 CERTIFIED VALUES AND UNCERTAINTIES**

**Certified Concentration:** 1,006 ± 5 µg/mL - weighted mean

**Certified Density:** 1.022 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 [(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

**4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

- "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)
- This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

**4.1 Assay Method #1 1,007 ± 3 µg/mL**  
EDTA NIST SRM 928 Lot Number: 928

**Assay Method #2 1,005 ± 3 µg/mL**  
ICP Assay NIST SRM 3159 Lot Number: 992912

**1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM**      **1000 µg/mL Titanium in 2% (v/v) HNO<sub>3</sub> / tr. HF**

Catalog Number:      CGT11-1, CGT11-2, and CGT11-5

Lot Number:      **F2-TI02090**

Starting Material:      Ti powder

Starting Material Purity (%):      99.9976

Starting Material Lot No:      1707

Matrix:      2% (v/v) HNO<sub>3</sub> / tr. HF

**Expires**

**1-Feb-2014**

**3.0 CERTIFIED VALUES AND UNCERTAINTIES**

**Certified Concentration:**      1,002 ± 5 µg/mL - weighted mean

**Certified Density:**      1.011 g/mL (measured at 20 ± 1°C)

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

$n$  = number of measurements

$$\text{Uncertainty } (\pm) = 2 \left[ \sum (s_i)^2 \right]^{1/2}$$

2 = the coverage factor.

$\left[ \sum (s_i)^2 \right]^{1/2}$  = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of  $k = 2$ .

**4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

• "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

• This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

**4.1 Assay Method #1**      **1,000 ± 3 µg/mL**

ICP Assay NIST SRM 3162a Lot Number: 060808

**Assay Method #2**      **1,003 ± 3 µg/mL**

Calculated NIST SRM Lot Number: See Sec. 4.2



- 1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM 1000 µg/mL Thallium in 0.7% (v/v) HNO<sub>3</sub>**

Catalog Number: CGTL1-1, CGTL1-2, and CGTL1-5  
Lot Number: **E2-TL01124**  
Starting Material: TINO<sub>3</sub>  
Starting Material Purity (%): 99.9996  
Starting Material Lot No: 1576  
Matrix: 0.7% (v/v) HNO<sub>3</sub>

**Expires**  
**1-Feb-2014**

**3.0 CERTIFIED VALUES AND UNCERTAINTIES**

**Certified Concentration:** 1,002 ± 5 µg/mL - weighted mean

**Certified Density:** 1.003 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 [(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

**4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

• "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

• This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

**4.1 Assay Method #1 1,004 ± 3 µg/mL**  
ICP Assay NIST SRM 3158 Lot Number: 993012

**Assay Method #2 1,000 ± 3 µg/mL**  
Calculated NIST SRM Lot Number: See Sec. 4.2



**INORGANIC  
VENTURES™**

300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com



# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

- 1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM 1000 µg/mL Uranium in 2% (v/v) HNO<sub>3</sub>**

Catalog Number: CGU1-1, CGU1-2, and CGU1-5

Lot Number: E2-U01091

Starting Material: UO<sub>2</sub>(NO<sub>3</sub>)2.6H<sub>2</sub>O

Starting Material Purity (%): 99.9979

Starting Material Lot No: 1627

Matrix: 2% (v/v) HNO<sub>3</sub>

**Expires**

**1-Feb-2014**

**3.0 CERTIFIED VALUES AND UNCERTAINTIES**

**Certified Concentration:** 1,004 ± 6 µg/mL - weighted mean

**Certified Density:** 1.010 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 [(\sum s_i^2)]^{1/2}}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

**Certified Abundance:** The <sup>235</sup>U in this standard is depleted. The Certified abundances in Atom % are as follows:

IV's Certified Abundance

Isotope	Atom%
Uranium 238U	99.6 ± 0.1
235U	0.42 ± 0.05

**4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

• "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

• This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.



**INORGANIC  
VENTURES**

300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com

QC VANADIUM STD IS PPMM IN 1.4% NL



130125NN

# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

**1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



## 2.0 DESCRIPTION OF CRM 1000 µg/mL Vanadium in 2% (v/v) HNO<sub>3</sub>

Catalog Number: CGV1-1, CGV1-2, and CGV1-5

Lot Number: **F2-V02074**

Starting Material: V<sub>2</sub>O<sub>5</sub>

Starting Material Purity (%): 99.9893

Starting Material Lot No: 46

Matrix: 2% (v/v) HNO<sub>3</sub>

**Expires**

**1-Feb-2014**

## 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Concentration:** 1,000 ± 5 µg/mL - weighted mean

**Certified Density:** 1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 [(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

## 4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

• "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

• This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

**4.1 Assay Method #1 998 ± 3 µg/mL**

EDTA NIST SRM 928 Lot Number: 928

**Assay Method #2 1,001 ± 4 µg/mL**

ICP Assay NIST SRM 3165 Lot Number: 992706



**INORGANIC  
VENTURES™**

300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com

ZINC STD 1,000PPM 2% NITRIC  
13012500

# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

**1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



## 2.0 DESCRIPTION OF CRM 1000 µg/mL Zinc in 2% (v/v) HNO<sub>3</sub>

Catalog Number: CGZN1-1, CGZN1-2, and CGZN1-5  
Lot Number: **F2-ZN02075**  
Starting Material: Zn shot  
Starting Material Purity (%): 99.9999  
Starting Material Lot No: 1676 1677  
Matrix: 2% (v/v) HNO<sub>3</sub>

**Expires**

**1-Feb-2014**

## 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Concentration:** 1,000 ± 5 µg/mL - weighted mean

**Certified Density:** 1.007 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 [(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

## 4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

• "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

• This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

**4.1 Assay Method #1 998 ± 3 µg/mL**

ICP Assay NIST SRM 3168a Lot Number: 080123

**Assay Method #2 1,001 ± 3 µg/mL**

EDTA NIST SRM 928 Lot Number: 928



**1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM**      Stock Solution  
Catalog No.:                      2007ICS-1  
Lot Number:                      **F2-MEB415153**  
Matrix:                              0.3% HF(v/v),                      2% HNO<sub>3</sub>(v/v)

1,000 µg/mL ea:

Ti,

500 µg/mL ea:

B,

300 µg/mL ea:

Mo,

230 µg/mL ea:

Si

**Expires**
**1-Feb-2014**

### 3.0 CERTIFIED VALUES AND UNCERTAINTIES

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Boron, B	500.0 ± 3.4 µg/mL	Molybdenum, Mo	300.0 ± 1.7 µg/mL	Silicon, Si	230.0 ± 1.1 µg/mL
Titanium, Ti	1,000 ± 7 µg/mL				

**Certified Density:**    1.014    g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of  $k = 2$ .

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

 $(\bar{x})$  = mean

 $x_i$  = individual results

 $n$  = number of measurements

$$\text{Uncertainty } (\pm) = 2 \left[ \sum (s_i)^2 \right]^{1/2}$$

2 = the coverage factor.

$\left[ \sum (s_i)^2 \right]^{1/2}$  = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.



**INORGANIC  
VENTURES**

300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com

INTERFERENTS 200.7 CHK #3 IN % Ni



13012500

# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

**1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM**      Stock Solution  
Catalog No.:                      2007ICS-3  
Lot Number:                      **F2-MEB405116**  
Matrix:                              7% HNO<sub>3</sub>(v/v)

**Expires**  
**1-Feb-2014**

20,000 µg/mL ea:

K,

1,000 µg/mL ea:

As,                      Pb,                      Tl,

500 µg/mL ea:

Se,

300 µg/mL ea:

Ag,                      Ba,                      Cd,                      Co,                      Cr<sub>3</sub>,                      Cu,                      Ni,                      V,                      Zn,

200 µg/mL ea:

Mn,

100 µg/mL ea:

Be

### 3.0 CERTIFIED VALUES AND UNCERTAINTIES

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Arsenic, As	1,000 ± 6 µg/mL	Barium, Ba	300.0 ± 2.0 µg/mL	Beryllium, Be	100.0 ± 0.6 µg/mL
Cadmium, Cd	300.0 ± 1.6 µg/mL	Chromium+3, Cr <sub>3</sub>	300.0 ± 2.1 µg/mL	Cobalt, Co	300.0 ± 1.9 µg/mL
Copper, Cu	300.0 ± 2.1 µg/mL	Lead, Pb	1,000 ± 8 µg/mL	Manganese, Mn	200.0 ± 1.1 µg/mL
Nickel, Ni	300.0 ± 2.2 µg/mL	Potassium, K	20,000.0 ± 130.0 µg/mL	Selenium, Se	500.0 ± 3.3 µg/mL
Silver, Ag	300.0 ± 1.9 µg/mL	Thallium, Tl	1,000 ± 6 µg/mL	Vanadium, V	300.0 ± 2.6 µg/mL
Zinc, Zn	300.0 ± 1.9 µg/mL				

**Certified Density:**      1.091      g/mL (measured at 20 ± 1° C)



300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com

INTERFERENTS 2007 CHN 74 IN 29, NI



# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 • 540.585.3030  
fax: 540.585.3012  
info@inorganicventures.com

**1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM**      Stock Solution  
Catalog No.:                      2007ICS-4  
Lot Number:                      **F2-MEB423125**  
Matrix:                              3% HNO<sub>3</sub>(v/v)

15,000 µg/mL ea:  
Ca,  
12,500 µg/mL ea:  
Fe,  
7,500 µg/mL ea:  
Mg,  
3,000 µg/mL ea:  
Al,  
2,500 µg/mL ea:  
Na

**Expires**

**1-Feb-2014**

### 3.0 CERTIFIED VALUES AND UNCERTAINTIES

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Aluminum, Al	3,012 ± 19 µg/mL	Calcium, Ca	15,060.0 ± 100.0 µg/mL	Iron, Fe	12,550.0 ± 80.0 µg/mL
Magnesium, Mg	7,530.0 ± 50.0 µg/mL	Sodium, Na	2,510 ± 17 µg/mL		

**Certified Density:** 1.179 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = 2 \left[ \sum (s_i)^2 \right]^{1/2}$$

2 = the coverage factor.

$\left[ \sum (s_i)^2 \right]^{1/2}$  = The square root of the sum of the squares of the most common errors (where's stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.



130125SS

**1.0** **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0** **DESCRIPTION OF CRM** Stock Solution  
Catalog No.: 6020ICS-0A  
Lot Number: **F2-MEB418129**  
Matrix: 1.4% HNO<sub>3</sub>(v/v)

**Expires**  
**1-Feb-2014**

10,000 µg/mL ea:

Chloride,

2,000 µg/mL ea:

C,

1,000 µg/mL ea:

Al, Ca, Fe, K, Mg, Na, P, S,

20 µg/mL ea:

Mo, Ti

### 3.0 CERTIFIED VALUES AND UNCERTAINTIES

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Aluminum, Al	1,001 ± 7 µg/mL	Calcium, Ca	1,001 ± 7 µg/mL	Carbon, C	2,002 ± 13 µg/mL
Chloride, Chloride	10,010.0 ± 40.0 µg/mL	Iron, Fe	1,001 ± 5 µg/mL	Magnesium, Mg	1,001 ± 6 µg/mL
Molybdenum, Mo	20.02 ± 0.15 µg/mL	Phosphorus, P	1,001 ± 6 µg/mL	Potassium, K	1,001 ± 6 µg/mL
Sodium, Na	1,001 ± 7 µg/mL	Sulfur, S	1,001 ± 7 µg/mL	Titanium, Ti	20.02 ± 0.13 µg/mL

**Certified Density:** 1.032 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = 2 \left[ \sum (s_i)^2 \right]^{1/2}$$

2 = the coverage factor.

$\left[ \sum (s_i)^2 \right]^{1/2}$  = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

**1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM** Stock Solution  
Catalog No.: 6020ICS-0B  
Lot Number: **F2-MEB415126**  
Matrix: 3% HNO<sub>3</sub>(v/v)

**Expires**
**1-Feb-2014**

2 µg/mL ea:

Ag, As, Cd, Co, Cr<sub>3</sub>, Cu, Mn, Ni, Zn

### 3.0 CERTIFIED VALUES AND UNCERTAINTIES

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Arsenic, As	2.001 ± 0.013 µg/mL	Cadmium, Cd	2.001 ± 0.013 µg/mL	Chromium+3, Cr <sub>3</sub>	2.001 ± 0.013 µg/mL
Cobalt, Co	2.001 ± 0.013 µg/mL	Copper, Cu	2.001 ± 0.013 µg/mL	Manganese, Mn	2.001 ± 0.013 µg/mL
Nickel, Ni	2.001 ± 0.011 µg/mL	Silver, Ag	2.001 ± 0.013 µg/mL	Zinc, Zn	2.001 ± 0.011 µg/mL

**Certified Density:** 1.014 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = 2 \left[ \sum (s_i)^2 \right]^{1/2}$$

2 = the coverage factor.

$\left[ \sum (s_i)^2 \right]^{1/2}$  = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

### 4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

• "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

• This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.



**INORGANIC  
VENTURES™**

300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com



# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

**1.0** **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0** **DESCRIPTION OF CRM**      Stock Solution  
Catalog No.:                      6020SPK-W  
Lot Number:                      **F2-MEB422019**  
Matrix:                              7% HNO<sub>3</sub>(v/v)

**Expires**  
**1-Feb-2014**

100 µg/mL ea:

Fe,

50 µg/mL ea:

Ba,                      Zn,

20 µg/mL ea:

Co,                      Cr<sub>3</sub>,                      Cu,                      Mn,                      Ni,                      Sb,                      V,

10 µg/mL ea:

As,                      Pb,

5 µg/mL ea:

Ag,                      Be,                      Cd,                      Se,                      Ti

## 3.0 CERTIFIED VALUES AND UNCERTAINTIES

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Antimony, Sb	20.01 ± 0.09 µg/mL	Arsenic, As	10.00 ± 0.07 µg/mL	Barium, Ba	50.02 ± 0.34 µg/mL
Beryllium, Be	5.002 ± 0.035 µg/mL	Cadmium, Cd	4.998 ± 0.029 µg/mL	Chromium+3, Cr <sub>3</sub>	20.01 ± 0.14 µg/mL
Cobalt, Co	20.00 ± 0.13 µg/mL	Copper, Cu	20.00 ± 0.15 µg/mL	Iron, Fe	100.0 ± 0.7 µg/mL
Lead, Pb	10.00 ± 0.08 µg/mL	Manganese, Mn	20.00 ± 0.11 µg/mL	Nickel, Ni	20.00 ± 0.15 µg/mL
Selenium, Se	5.000 ± 0.035 µg/mL	Silver, Ag	5.000 ± 0.032 µg/mL	Thallium, Tl	5.001 ± 0.033 µg/mL
Vanadium, V	20.00 ± 0.14 µg/mL	Zinc, Zn	49.98 ± 0.32 µg/mL		

**Certified Density:**      1.036      g/mL (measured at 20 ± 1° C)



**INORGANIC  
VENTURES™**

300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com



# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

**1.0** **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0** **DESCRIPTION OF CRM**      Stock Solution  
Catalog No.:                      6020SPK-W  
Lot Number:                      **F2-MEB422019**  
Matrix:                              7% HNO<sub>3</sub>(v/v)

**Expires**  
**1-Feb-2014**

100 µg/mL ea:

Fe,

50 µg/mL ea:

Ba,                      Zn,

20 µg/mL ea:

Co,                      Cr<sub>3</sub>,                      Cu,                      Mn,                      Ni,                      Sb,                      V,

10 µg/mL ea:

As,                      Pb,

5 µg/mL ea:

Ag,                      Be,                      Cd,                      Se,                      Tl

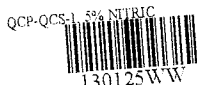
## 3.0 CERTIFIED VALUES AND UNCERTAINTIES

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Antimony, Sb	20.01 ± 0.09 µg/mL	Arsenic, As	10.00 ± 0.07 µg/mL	Barium, Ba	50.02 ± 0.34 µg/mL
Beryllium, Be	5.002 ± 0.035 µg/mL	Cadmium, Cd	4.998 ± 0.029 µg/mL	Chromium+3, Cr <sub>3</sub>	20.01 ± 0.14 µg/mL
Cobalt, Co	20.00 ± 0.13 µg/mL	Copper, Cu	20.00 ± 0.15 µg/mL	Iron, Fe	100.0 ± 0.7 µg/mL
Lead, Pb	10.00 ± 0.08 µg/mL	Manganese, Mn	20.00 ± 0.11 µg/mL	Nickel, Ni	20.00 ± 0.15 µg/mL
Selenium, Se	5.000 ± 0.035 µg/mL	Silver, Ag	5.000 ± 0.032 µg/mL	Thallium, Tl	5.001 ± 0.033 µg/mL
Vanadium, V	20.00 ± 0.14 µg/mL	Zinc, Zn	49.98 ± 0.32 µg/mL		

**Certified Density:**      1.036      g/mL (measured at 20 ± 1° C)



300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com



# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

**1.0** **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0** **DESCRIPTION OF CRM** Stock Second Source Solution

Catalog No.: QCP-QCS-1

Lot Number: **F2-MEB437023**

Matrix: 5% HNO<sub>3</sub>(v/v)

**Expires**

**1-Feb-2014**

**Second Source:** Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

500 µg/mL ea:

K, P, TI,

200 µg/mL ea:

As, Hg, Pb,

100 µg/mL ea:

Al, B, Ba, Be, Ca, Cd, Ce, Co, Cr<sub>3</sub>,

Cu, Fe, Li, Mg, Mn, Na, Ni, Se, Sr,

V, Zn,

25 µg/mL ea:

Ag

## 3.0 CERTIFIED VALUES AND UNCERTAINTIES

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Aluminum, Al	99.9 ± 0.7 µg/mL	Arsenic, As	199.8 ± 1.3 µg/mL	Barium, Ba	99.9 ± 0.7 µg/mL
Beryllium, Be	99.9 ± 0.7 µg/mL	Boron, B	99.9 ± 0.7 µg/mL	Cadmium, Cd	99.9 ± 0.5 µg/mL
Calcium, Ca	99.9 ± 0.6 µg/mL	Cerium, Ce	99.9 ± 0.7 µg/mL	Chromium+3, Cr <sub>3</sub>	99.9 ± 0.8 µg/mL
Cobalt, Co	99.9 ± 0.8 µg/mL	Copper, Cu	99.9 ± 0.5 µg/mL	Iron, Fe	99.9 ± 0.7 µg/mL
Lead, Pb	199.8 ± 1.5 µg/mL	Lithium, Li	99.9 ± 0.4 µg/mL	Magnesium, Mg	99.9 ± 0.7 µg/mL
Manganese, Mn	99.9 ± 0.6 µg/mL	Mercury, Hg	199.8 ± 0.8 µg/mL	Nickel, Ni	99.9 ± 0.5 µg/mL
Phosphorus, P	499.5 ± 2.6 µg/mL	Potassium, K	499.6 ± 3.2 µg/mL	Selenium, Se	99.9 ± 1.1 µg/mL
Silver, Ag	24.98 ± 0.16 µg/mL	Sodium, Na	99.9 ± 0.4 µg/mL	Strontium, Sr	99.9 ± 0.5 µg/mL
Thallium, TI	499.5 ± 3.2 µg/mL	Vanadium, V	99.9 ± 0.5 µg/mL	Zinc, Zn	99.9 ± 0.6 µg/mL

**Certified Density:** 1.039 g/mL (measured at 20 ± 1° C)





300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com



# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

**1.0** **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0** **DESCRIPTION OF CRM** Stock Second Source Solution  
Catalog No.: QCP-QCS-2  
Lot Number: **F2-MEB405018**  
Matrix: tr. HF, 5% HNO<sub>3</sub>(v/v)

**Expires**  
**1-Feb-2014**

**Second Source:** Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

500 µg/mL ea:  
SiO<sub>2</sub>, Sn,  
200 µg/mL ea:  
Sb,  
100 µg/mL ea:  
Mo, Ti

### 3.0 CERTIFIED VALUES AND UNCERTAINTIES

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Antimony, Sb	200.6 ± 0.9 µg/mL	Molybdenum, Mo	100.3 ± 0.7 µg/mL	Silica, SiO <sub>2</sub>	501.5 ± 2.2 µg/mL
Tin, Sn	501.5 ± 2.4 µg/mL	Titanium, Ti	100.3 ± 0.6 µg/mL		

**Certified Density:** 1.027 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 [(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

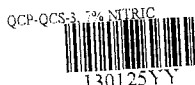
$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)



**INORGANIC  
VENTURES™**

300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com



# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

**1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM**      Stock Second Source Solution  
Catalog No.:                      QCP-QCS-3  
Lot Number:                      **F2-MEB419065**  
Matrix:                              7% HNO<sub>3</sub>(v/v)

**Expires**

**1-Feb-2014**

**Second Source:** Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

50 µg/mL ea:

Se,

10 µg/mL ea:

Ag,	Al,	As,	Ba,	Be,	Ca,	Cd,	Co,	Cr3,
Cu,	Fe,	K,	Mg,	Mn,	Mo,	Na,	Ni,	Pb,
Sb,	Th,	Tl,	U,	V,	Zn			

## 3.0 CERTIFIED VALUES AND UNCERTAINTIES

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Aluminum, Al	10.00 ± 0.05 µg/mL	Antimony, Sb	10.00 ± 0.06 µg/mL	Arsenic, As	10.00 ± 0.05 µg/mL
Barium, Ba	10.00 ± 0.05 µg/mL	Beryllium, Be	10.00 ± 0.06 µg/mL	Cadmium, Cd	10.00 ± 0.05 µg/mL
Calcium, Ca	10.00 ± 0.05 µg/mL	Chromium+3, Cr3	10.00 ± 0.08 µg/mL	Cobalt, Co	10.00 ± 0.05 µg/mL
Copper, Cu	10.00 ± 0.05 µg/mL	Iron, Fe	10.00 ± 0.05 µg/mL	Lead, Pb	10.00 ± 0.05 µg/mL
Magnesium, Mg	10.00 ± 0.05 µg/mL	Manganese, Mn	10.00 ± 0.07 µg/mL	Molybdenum, Mo	10.00 ± 0.08 µg/mL
Nickel, Ni	10.00 ± 0.05 µg/mL	Potassium, K	10.00 ± 0.05 µg/mL	Selenium, Se	50.01 ± 0.28 µg/mL
Silver, Ag	10.00 ± 0.06 µg/mL	Sodium, Na	10.00 ± 0.10 µg/mL	Thallium, Tl	10.00 ± 0.06 µg/mL
Thorium, Th	10.00 ± 0.05 µg/mL	Uranium, U	10.00 ± 0.06 µg/mL	Vanadium, V	10.00 ± 0.05 µg/mL
Zinc, Zn	10.00 ± 0.05 µg/mL				

**Certified Density:**    1.036    g/mL (measured at 20 ± 1° C)



300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com



# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 • 540.585.3030  
fax: 540.585.3012  
info@inorganicventures.com

**1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM** Stock Second Source Solution  
Catalog No.: QCP-QCS-4  
Lot Number: **F2-MEB416140**  
Matrix: 7% HNO<sub>3</sub>(v/v)

**Expires**  
**1-Feb-2014**

**Second Source:** Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

5 µg/mL ea:  
Hg

### 3.0 CERTIFIED VALUES AND UNCERTAINTIES

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Mercury, Hg	5.001 ± 0.023 µg/mL				

**Certified Density:** 1.034 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean  
 $x_i$  = individual results  
 $n$  = number of measurements

$$\text{Uncertainty } (\pm) = 2 \left[ \sum (s_i)^2 \right]^{1/2}$$

2 = the coverage factor.  
 $\left[ \sum (s_i)^2 \right]^{1/2}$  = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

### 4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

- "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)
- This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.



300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com



# CERTIFICATE OF ANALYSIS

tel: 800.639.6799 • 540.585.3010

fax: 540.585.3012

info@inorganicventures.com

**1.0** **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0** **DESCRIPTION OF CRM** Stock Solution  
Catalog No.: WW-LFS-1  
Lot Number: **F2-MEB419068**  
Matrix: 5% HNO<sub>3</sub>(v/v)

**Expires**  
**1-Feb-2014**

1,000 µg/mL ea:

K,

600 µg/mL ea:

P,

300 µg/mL ea:

Fe, Na,

200 µg/mL ea:

Al, Ce, Mg, Se, Ti,

100 µg/mL ea:

Ca, Pb,

80 µg/mL ea:

As,

70 µg/mL ea:

Hg,

50 µg/mL ea:

Ni,

40 µg/mL ea:

Cr<sub>3</sub>,

30 µg/mL ea:

B, Cu, V,

20 µg/mL ea:

Ba, Be, Cd, Co, Li, Mn, Sr, Zn,

7.5 µg/mL ea:

Ag

### 3.0 CERTIFIED VALUES AND UNCERTAINTIES

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Aluminum, Al	200.0 ± 1.4 µg/mL	Arsenic, As	80.0 ± 0.5 µg/mL	Barium, Ba	20.00 ± 0.13 µg/mL
Beryllium, Be	20.00 ± 0.14 µg/mL	Boron, B	30.00 ± 0.20 µg/mL	Cadmium, Cd	20.01 ± 0.13 µg/mL
Calcium, Ca	100.0 ± 0.7 µg/mL	Cerium, Ce	200.0 ± 1.3 µg/mL	Chromium+3, Cr <sub>3</sub>	40.01 ± 0.28 µg/mL
Cobalt, Co	20.01 ± 0.13 µg/mL	Copper, Cu	30.00 ± 0.21 µg/mL	Iron, Fe	300.1 ± 2.0 µg/mL
Lead, Pb	100.0 ± 0.8 µg/mL	Lithium, Li	20.00 ± 0.14 µg/mL	Magnesium, Mg	200.0 ± 1.3 µg/mL

**1.0 INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM** Stock Solution  
Catalog No.: WW-LFS-1  
Lot Number: **F2-MEB419068**  
Matrix: 5% HNO<sub>3</sub>(v/v)

**Expires**  
**1-Feb-2014**

1,000 µg/mL ea:

K,

600 µg/mL ea:

P,

300 µg/mL ea:

Fe, Na,

200 µg/mL ea:

Al, Ce, Mg, Se, Ti,

100 µg/mL ea:

Ca, Pb,

80 µg/mL ea:

As,

70 µg/mL ea:

Hg,

50 µg/mL ea:

Ni,

40 µg/mL ea:

Cr<sub>3</sub>,

30 µg/mL ea:

B, Cu, V,

20 µg/mL ea:

Ba, Be, Cd, Co, Li, Mn, Sr, Zn,

7.5 µg/mL ea:

Ag

### 3.0 CERTIFIED VALUES AND UNCERTAINTIES

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Aluminum, Al	200.0 ± 1.4 µg/mL	Arsenic, As	80.0 ± 0.5 µg/mL	Barium, Ba	20.00 ± 0.13 µg/mL
Beryllium, Be	20.00 ± 0.14 µg/mL	Boron, B	30.00 ± 0.20 µg/mL	Cadmium, Cd	20.01 ± 0.13 µg/mL
Calcium, Ca	100.0 ± 0.7 µg/mL	Cerium, Ce	200.0 ± 1.3 µg/mL	Chromium+3, Cr <sub>3</sub>	40.01 ± 0.28 µg/mL
Cobalt, Co	20.01 ± 0.13 µg/mL	Copper, Cu	30.00 ± 0.21 µg/mL	Iron, Fe	300.1 ± 2.0 µg/mL
Lead, Pb	100.0 ± 0.8 µg/mL	Lithium, Li	20.00 ± 0.14 µg/mL	Magnesium, Mg	200.0 ± 1.3 µg/mL

**1.0** **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM** Stock Solution

Catalog No.:

WW-LFS-2

Lot Number:

**E2-MEB378055**

Matrix:

tr. HF,

5% HNO<sub>3</sub>(v/v)

**Expires**
**1-Feb-2014**

200 µg/mL ea:

SiO<sub>2</sub>,

80 µg/mL ea:

Sb,

70 µg/mL ea:

Sn,

40 µg/mL ea:

Mo,

20 µg/mL ea:

Ti

**3.0 CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Antimony, Sb	80.0 ± 0.6 µg/mL	Molybdenum, Mo	40.00 ± 0.16 µg/mL	Silica, SiO <sub>2</sub>	200.0 ± 0.5 µg/mL
Tin, Sn	70.0 ± 0.4 µg/mL	Titanium, Ti	20.03 ± 0.10 µg/mL		

**Certified Density:** 1.025 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

 $(\bar{x})$  = mean

 $x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 [(\sum s_i^2)^{1/2}]}{(n)^{1/2}}$$

 $\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)



**1.0** **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0 DESCRIPTION OF CRM**      Stock Solution  
Catalog No.:                      WW-LFS-2  
Lot Number:                      **E2-MEB378055**  
Matrix:                              tr. HF,                              5% HNO<sub>3</sub>(v/v)

**Expires**  
**1-Feb-2014**

200 µg/mL ea:  
SiO<sub>2</sub>,  
80 µg/mL ea:  
Sb,  
70 µg/mL ea:  
Sn,  
40 µg/mL ea:  
Mo,  
20 µg/mL ea:  
Ti

### 3.0 CERTIFIED VALUES AND UNCERTAINTIES

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Antimony, Sb	80.0 ± 0.6 µg/mL	Molybdenum, Mo	40.00 ± 0.16 µg/mL	Silica, SiO <sub>2</sub>	200.0 ± 0.5 µg/mL
Tin, Sn	70.0 ± 0.4 µg/mL	Titanium, Ti	20.03 ± 0.10 µg/mL		

**Certified Density:**    1.025    g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 [(\sum s_i^2)]^{1/2}}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)



**INORGANIC  
VENTURES**

300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com



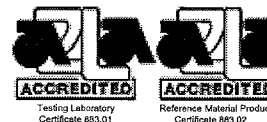
# CERTIFICATE OF ANALYSIS

tel: 300.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

INORGANIC VENTURES is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



## WATER QC CERTIFIED REFERENCE MATERIAL Complex Nutrients

Catalog No: QCP-NUT-2

**Expires**

1-Feb-2014

Lot Number: D2-NUT01114

**STABILITY AND STORAGE INFORMATION** - This CRM can be stored at room temperature before opening. After opening and dilution, the EPA recommends that it be stored at 4 °C for no more than 48 hours for Phosphate as P.

## SPECIFICATIONS AND TRACEABILITY:

Parameter	Certified Value	Made to Value	Analytical Method	NIST Traceability	Acceptance Limits
Total Kjeldahl Nitrogen as N <sup>(a)</sup>	9.00 ± 0.03 mg/L	9.00 mg/L	Calculated	SRM 141d	11.30 – 6.70 mg/L
Total Organic Phosphorus as P	1.984 ± 0.012 mg/L	2.00 mg/L	ICP	SRM 3139a	2.409 – 1.559 mg/L

Values in the above table are after customer 1:200 v/v dilution.

<sup>(a)</sup>Total Kjeldahl Nitrogen as N tested by outside laboratory. The following results are listed for informational purposes only:

Test 1 = 9.6 mg/L

Test 2 = 8.7 mg/L

EPA method 351.2

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2[(\sum s_i^2)]^{1/2}}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume, and the fixed error reported on the NIST SRM certificate of analysis)

**ANALYZED DENSITY OF SOLUTION (measured at 21.5°C): 1.005 g/mL**





TechLaw, Inc.  
Environmental Services Assistance Team  
16194 W. 45<sup>th</sup> Drive, Golden, CO 80403  
303-312-7721

---

Contract: EP-W-06-33

## **Certificates of Analysis**

Valid through January 2014

**Anions by Ion Chromatography**

**TSS / TDS**

**Dissolved Organic Carbon**

**Alkalinity**

- Initial Calibration Verification (ICV) Standards
- Laboratory Check Standards (LCS)
- Matrix Spike Solutions



300 Technology Drive  
Christiansburg, VA 24073 • USA  
inorganicventures.com

QCPLUS SOLID



15388

Rec'd:

2012-03-30

# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

Expi May 01, 2013

INORGANIC VENTURES is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



## WATER QC Reference Material Solids

Catalog No: QCP-SLD

Lot Number: E2-SLD02009

**STABILITY AND STORAGE INFORMATION** - This reference material can be stored at room temperature before and after opening. The EPA recommends a "maximum" holding time for solids samples of 7 days at 4 °C. Our stability data indicates that this standard should be disposed of in 3 months after opening.

## SPECIFICATIONS AND TRACEABILITY:

Parameter	Certified Value	Made to Value	Analytical Method	NIST Traceability	Acceptance Limits
Filterable Residue	4821 ± 36 mg/L	4567 mg/L	Standard Methods 2540C	Gravimetric	5983 – 3658 mg/L
Non-filterable Residue	143.5 ± 0.8 mg/L	135 mg/L	Standard Methods 2540D	Gravimetric	153.4 – 133.6 mg/L
Total Residue	5018 ± 18 mg/L	4702 mg/L	Standard Methods 2540B	Gravimetric	6227 – 3809 mg/L

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume, and the fixed error reported on the NIST SRM certificate of analysis.)



300 Technology Driv  
Christiansburg, VA 24016  
inorganicventures.com



Rec'd:  
2012-03-30

# CERTIFICATE OF ANALYSIS

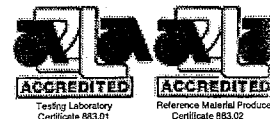
tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

Exp: May 01, 2013

INORGANIC VENTURES is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



## WATER QC REFERENCE MATERIAL Minerals

Catalog No: QCP-MIN

Lot Number: E2-MIN01123

### STABILITY AND STORAGE INFORMATION

- Do not put transfer devices, probes, etc. in sample container. The insertion of a pH electrode, for example, can significantly increase the conductivity, potassium, and chloride values. This standard can be stored at room temperature before opening. After opening, the EPA recommends a "maximum" holding time for the following:

Parameter	Holding Conditions	Holding Time
Alkalinity	4°C	14 days
Conductivity	4°C	28 days
Chloride	None required	28 days
Sulfate	4°C	28 days
Nitrate as N	4°C	48 hours
Fluoride	None required	28 days
Sodium	HNO <sub>3</sub> to pH<2	6 months
Potassium	HNO <sub>3</sub> to pH<2	6 months

### SPECIFICATIONS AND TRACEABILITY:

\*pH: The value listed below is for informational purposes only. The pH value of this CRM is not stable and cannot be relied upon. It can change up to 1 pH unit. For a certified pH CRM, use catalog no. QCP-PH.

Parameter	Certified Value	Made to Value	Analytical Method	NIST Traceability	Acceptance Limits
Alkalinity	115.19 ± 0.58 mg/L CaCO <sub>3</sub>	110.075 mg/L	EPA Method 310.1	723d	122.71 – 107.66 mg/L CaCO <sub>3</sub>
Conductivity	1287 ± 7 µmhos/cm @ 25°C	Measured	EPA Method 120.1	999b	1421 – 1153 µmhos/cm @ 25°C
Chloride	200.24 ± 0.44 mg/L	200.21 mg/L	EPA Method 300.0	3182	215.05 – 185.43 mg/L
Fluoride	7.92 ± 0.04 mg/L	8.00 mg/L	EPA Method 300.0	3183	8.54 – 7.30 mg/L
Sulfate	125.22 ± 0.75 mg/L	125.00 mg/L	EPA Method 300.0	3181	142.82 – 107.62 mg/L
Nitrate as N	8.80 ± 0.08 mg/L	9.00 mg/L	EPA Method 300.0	3185	10.54 – 7.05 mg/L
Sodium	202.31 ± 0.75 mg/L	203.01 mg/L	ICP	3152a	222.03 – 182.58 mg/L
Potassium	101.71 ± 1.63 mg/L	101.68 mg/L	ICP	3141a	116.10 – 87.32 mg/L
pH	9.21 units	Measured	4500-H <sup>+</sup> B	186g, 185h	*See parameters table above



# Certificate of Analysis

Total Organic Carbon (TOC) Standard  
(from KHP)

Catalog Number: IQC-106  
Lot Number: M01122  
Job Number: J00013787  
Lot Issue Date: 10/24/2011  
Expiration Date: 11/30/2013

This Certified Reference Material (CRM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system. The analyte concentrations were verified by our ISO 17025 accredited laboratory to be within  $\pm 2.5\%$ , when compared to calibration standards independently prepared using NIST SRM(s). The certified value and uncertainty value at the 95% confidence level for each analyte is determined gravimetrically.

Analyte	True Value			Analytical Method	NIST SRM
total organic carbon (TOC)	1000	$\pm$	5 mg/L	TOC Analyzer	84K

Matrix: low TOC water (< 50 ppb)

ULTRA uses purified acids, 18 megohm double deionized water, calibrated Class A glassware & meticulously cleaned bottles in the manufacturing of ULTRAGrade standards. Balances used in the manufacturing of this standard are calibrated with weights traceable to NIST in compliance with ANSI/NCCL Z-540-1 and ISO 9001.



ISO 17025:2005  
Accredited  
A2LA  
Cert. No. 0851.01

ISO 9001:2000  
Registered  
TUV USA, Inc.  
Cert. No. 06-1004

250 Smith Street, North Kingstown, RI 02852 USA  
Ph: 401-294-9400 \* Fax: 401-295-2330  
[www.ultrasci.com](http://www.ultrasci.com)

  
William J. Leary  
Quality Assurance Manager



300 Technology Drive  
Christiansburg, VA 24073 · USA  
inorganicventures.com

## CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

Exp: 2/2014

INORGANIC VENTURES is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001:2000 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



### WATER QC REFERENCE MATERIAL Minerals

Catalog No: QCP-MIN

Lot Number: C2-MIN01121

### STABILITY AND STORAGE INFORMATION

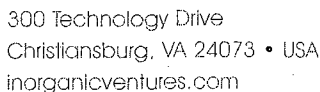
- Do not put transfer devices, probes, etc. in sample container. The insertion of a pH electrode, for example, can significantly increase the conductivity, potassium, and chloride values. This standard can be stored at room temperature before opening. After opening, the EPA recommends a "maximum" holding time for the following:

PARAMETER	HOLDING CONDITIONS	HOLDING TIME
Alkalinity	4°C	14 days
Conductivity	4°C	28 days
Chloride	None required	28 days
Sulfate	4°C	28 days
Nitrate as N	4°C	48 hours
Fluoride	None required	28 days
Sodium	HNO <sub>3</sub> to pH<2	6 months
Potassium	HNO <sub>3</sub> to pH<2	6 months

\*pH: The value listed below is for informational purposes only. The pH value of this CRM is not stable and cannot be relied upon. It can change up to 1 pH unit. For a certified pH CRM, use catalog no. QCP-PH.

### SPECIFICATIONS AND TRACEABILITY:

Parameter	Certified Value	Made to Value	Analytical Method	NIST Traceability	Acceptance Limits
Alkalinity	123.01 ± 0.73 mg/L CaCO <sub>3</sub>	123.7 mg/L	EPA Method 310.1	723d	130.84 – 115.18 mg/L CaCO <sub>3</sub>
Conductivity	1186 ± 1 µmhos/cm @ 25°C	Measured	EPA Method 120.1	999b	1310 – 1062 µmhos/cm @ 25°C
Chloride	192.211 ± 1.601 mg/L	198.0 mg/L	EPA Method 300.0	3182	206.496 – 177.926 mg/L
Fluoride	5.633 ± 0.177 mg/L	6.000 mg/L	EPA Method 300.0	3183	6.089 – 5.176 mg/L
Sulfate	113.542 ± 2.974 mg/L	120.0 mg/L	EPA Method 300.0	3154	129.612 – 97.472 mg/L
Nitrate as N	4.685 ± 0.194 mg/L	5.001 mg/L	EPA Method 300.0	3185	5.635 – 3.735 mg/L
Sodium	193.904 ± 6.657 mg/L	242.7 mg/L	ICP	3152a	212.83 – 174.985 mg/L
Potassium	92.095 ± 1.733 mg/L	97.63 mg/L	ICP	3141a	105.144 – 79.047 mg/L
pH	9.18 units	Measured	EPA Method 310.1	186g, 185h	*See parameters table above



tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

EXP: April 01, 2013

- 
- Testing Laboratory  
Certificate 883.01



- 4.1**      **Assay Method #1**      **10,062 ± 39 µg/mL**  
ICP Assay NIST SRM 3139a   Lot Number: 060717
- Assay Method #2**      **10,070 ± 22 µg/mL**  
Acidimetric NIST SRM 84L   Lot Number: 84L



300 Technology Drive  
Christiansburg, VA 24073 · USA  
inorganicventures.com

## CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

Exp: 2/2014

INORGANIC VENTURES is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



### WATER QC CERTIFIED REFERENCE MATERIAL Complex Nutrients Catalog No: QCP-NUT-2

Lot Number: D2-NUT01115

**STABILITY AND STORAGE INFORMATION** - This CRM can be stored at room temperature before opening. After opening and dilution, the EPA recommends that it be stored at 4 °C for no more than 48 hours for Phosphate as P.

### SPECIFICATIONS AND TRACEABILITY:

Parameter	Certified Value	Made to Value	Analytical Method	NIST Traceability	Acceptance Limits
Total Kjeldahl Nitrogen as N <sup>(a)</sup>	22.0 ± 0.10mg/L	22.0 mg/L	Calculated	SRM 141d	27.1 – 16.9 mg/L
Total Organic Phosphorus as P	9.493 ± 0.083 mg/L	9.499 mg/L	ICP	SRM 3139a	11.409 – 7.578 mg/L

Values in the above table are after customer 1:200 v/v dilution.

<sup>(a)</sup>Total Kjeldahl Nitrogen as N tested by outside laboratory. The following results are listed for informational purposes only:

Test 1 = 19.6 mg/L

Test 2 = 20.0 mg/L

EPA method 351.2

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2[(\sum s_i^2)]^{1/2}}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume, and the fixed error reported on the NIST SRM certificate of analysis)

**ANALYZED DENSITY OF SOLUTION (measured at 21.5°C): 1.018 g/mL**



195 Lehigh Avenue, Suite 4  
Lakewood, New Jersey 08701 • USA  
inorganicventures.com

# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 • 732.901.1900

fax: 732.901.1903

info@inorganicventures.com

Exp: 2/2014

**1.0 INORGANIC VENTURES** is an ISO Guide 34:2000 registered Certified Reference Material (CRM) Manufacturer (Certificate #883-02). The certificate is designed and the data is determined in accordance with ISO Guide 31:2000 (Reference Materials-Contents of Certificates and Labels), ISO Guide 34:2000 "Quality System Guidelines for the Production of Reference Materials," and ISO Guide 35-1989 "Certification of Reference Materials - General and Statistical Principles."

**2.0 DESCRIPTION OF CRM** Stock Second Source Custom Solution

Catalog No.: QCP-QCS-5

Lot Number: B2-MEB255074

Matrix: H2O

**Second Source:** This solution was manufactured from a second set of concentrates maintained in our manufacturing facility.

75.00 µg/mL ea:

Sulfate,

50.00 µg/mL ea:

Bromide,

25.00 µg/mL ea:

oPhosph

ate\_as\_

P,

15.00 µg/mL ea:

Chloride, Nitrite\_a

s\_N,

10.00 µg/mL ea:

Fluoride, Nitrate\_a

s\_N

**3.0 CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Bromide, Bromide	50.20 ± 0.17 µg/mL	Chloride, Chloride	15.04 ± 0.03 µg/mL	Fluoride, Fluoride	10.04 ± 0.02 µg/mL
Nitrate_as_N, Nitrate_as_N	10.01 ± 0.02 µg/mL	Nitrite_as_N, Nitrite_as_N	14.97 ± 0.05 µg/mL	o-Phosphate as P, oPhosphate	25.00 ± 0.07 µg/mL
Sulfate, Sulfate	75.1 ± 0.2 µg/mL				

**Certified Density:** 0.998 g/mL (measured at 22° C)

The following equations are used in the calculation of the certified value and the uncertainty

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

$n$  = number of measurements

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume, and the fixed error reported on the NIST SRM certificate of analysis.)



## 4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

- "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)
- This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

### 4.1 ASSAY INFORMATION

ELEMENT	METHOD	NIST SRM#	SRM LOT#	ELEMENT	METHOD	NIST SRM#	SRM LOT#
Bromide	IC Assay	3184	020701	Bromide	Volhard	999a	999a
Chloride	IC Assay	3182	990506	Chloride	Volhard	999a	999a
Fluoride	Gravimetric		See Sec. 4.2	Fluoride	IC Assay	3183	991510
Nitrate_as_N	IC Assay	3185	991508	Nitrate_as_N	Gravimetric		See Sec. 4.2
Nitrite_as_N	Gravimetric		See Sec. 4.2	Nitrite_as_N	IC Assay	40h	40h
oPhosphate_as_P	IC Assay	3186	000330	oPhosphate_as_P	Gravimetric		See Sec. 4.2
Sulfate	Gravimetric		See Sec. 4.2	Sulfate	IC Assay	3154	892205

**4.2 BALANCE CALIBRATION** - All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST). The NIST Traceability numbers are 692476 - Class 1 and 692476A - Class 2. The NIST test number is 822/260017-98. All analytical balances are calibrated every 4 months. The balances are calibrated with a class 1 and/or class 2 analytical weight set. These weights are tested annually by a NIST / NVLAP accredited calibration lab. The NIST test number is

**4.3 THERMOMETER CALIBRATION** - The thermometers used in the determination of the final densities are calibrated vs standard thermometer No. 903-2680 which was certified in accordance with the procedures outlined by ASTM E77-87 and NIST Monograph 150 using NIST Test Nos. and Std Nos.: 769543, 217368/769543, 217368/P14452, 176240/P14452, 176240. Thermometers which are not calibrated vs standard thermometer No. 903-2680 are traceable to NIST Identification

**4.4 GLASSWARE CALIBRATION** - An in-house procedure is used to calibrate all Class A Glassware used in the manufacturing and quality control of CRM's.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES IN µg/mL - N/A

### 6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:  
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Electrophoresis, Potentiometry, Wet Chemistry and Voltammetry  
For the validation of analytical methods  
For the preparation of "working reference samples"  
For interference studies and the determination of correction coefficients  
For detection limit and linearity studies  
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

**Storage & Handling** - Keep **Tightly** sealed when not in use. Store and use at 20 ± 4°C. **Do Not** pipette from the container. **Do Not** return portions removed from pipetting to container.

Element Specific Information - For specific information regarding any element: Contact technical staff.

**8.0 HAZARDOUS INFORMATION** - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

**9.0 HOMOGENEITY** - This solution was mixed according to in-house procedure IV-MPM-004 and is guaranteed to be homogeneous.

## 10.0 QUALITY STANDARD DOCUMENTATION



### 10.1 ISO 9001:2000 Quality Management System Registration - QMI Certificate Number 010105

#### Recognized by:

Registrar Accreditation Board (ANSI-RAB)

Standards Council of Canada (SCC)

Dutch Council for Accreditation (RVA)

Entidad Mexicana de Acreditacion, a.c.(EMA)

#### Members of IQ Net International Certification Network:

Argentina (IRAM), Australia (QAS), Austria (ÖQS), Belgium (Avinter), Brazil (FCAV), Canada (QMI), Hong Kong (HKQAA), Columbia (ICONTEC), Czech Republic (CQS), Denmark (DS), Finland (SFS), France (AFAQ), Germany (DQS), Greece (ELOT), Hungary (MSZT), Ireland (NSAI), Israel (SII), Italy (CISQ), Japan (JQA), Korea (KSA-QA), Netherlands (KEMA), Norway (NCS), Poland(PCBC), Portugal (APCER), Singapore (PSB), Slovenia (SIQ), Spain (AENOR), Switzerland (SQS)

### 10.2 ISO/IEC 17025:2005 "General Requirements for the Competence of Testing and Calibration"

- Chemical Testing - Accredited A2LA Certificate Number 883.01

### 10.3 ISO/IEC Guide 34 - 2000 "General Requirements for the Competence of Reference Material Producers"

- Reference Materials Production - Accredited A2LA Certificate Number 883.02

#### A2LA Mutual Recognition Agreement Partners:

Australia (NATA), Austria (BmWA), Belgium (BELTEST) (BKO-OBE), Canada (SCC), Chinese Taipei (CNLA), Czech Republic (NAO), Denmark (DANAK), Finland (FINAS), France (COFRAC), Germany (DAR), Hong Kong (HKAS), Ireland (NAB), Italy (SIT) (SINAL), Japan (JAB) (JNLA), Republic of Korea (KOLAS), The Netherlands (RvA), New Zealand (IANZ), Norway (NA), Portugal (IPQ), Singapore (SAC-SINGLAS), Spain (ENAC), Sweden (SWEDAC), Switzerland (SAS), United Kingdom (UKAS) and United States (NVLAP) (ICBO ES)

### 10.4 10CFR50 Appendix B - Nuclear Regulatory Commission - Domestic Licensing of Production and Utilization Facilities

### 10.5 10CFR21 - Nuclear Regulatory Commission - Reporting Defects and Non-Compliance

### 10.6 MIL-STD-45662A (Obsolete/Observed)

## 11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

**11.1 Shelf Life** - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability. Transpiration studies of chemically-stable solutions performed at the manufacturer's facility show a CRM shelf-life of twenty one months for solutions packaged in 125-mL low density polyethylene bottles. When stored under special environmental controls that minimize transpiration and instability, the shelf life can be extended past this limit.

**11.2 Expiration Date** - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

**Certification Date:** March 05, 2008

**Expiration Date:**

## 12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

**Certificate Prepared By:** Angela Sinclair, Product Documentation Administrator

**Certificate Approved By:** Katalin Le, QC Manager

**Certifying Officer:** Paul Gaines, PhD., Senior Technical Director

**1.0** **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



**2.0** **DESCRIPTION OF CRM** **Ion Chromatography 10000 µg/mL Nitrate as N in H<sub>2</sub>O**

Catalog Number: ICNNO310K  
Lot Number: **D2-NOX02083MCA**  
Starting Material: NaNO<sub>3</sub>  
Starting Material Purity (%): 99.0000  
Starting Material Lot No.: 1571  
Matrix: H<sub>2</sub>O

**3.0** **CERTIFIED VALUES AND UNCERTAINTIES**

**Certified Concentration:** 10,206 ± 62 µg/mL

**Certified Density:** 1.038 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 \left[ \left( \sum s_i \right)^2 \right]^{1/2}}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

**4.0** **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

• "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

• This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

**4.1** **Assay Method #1** **10,206 ± 62 µg/mL (avg. of 2 runs)**

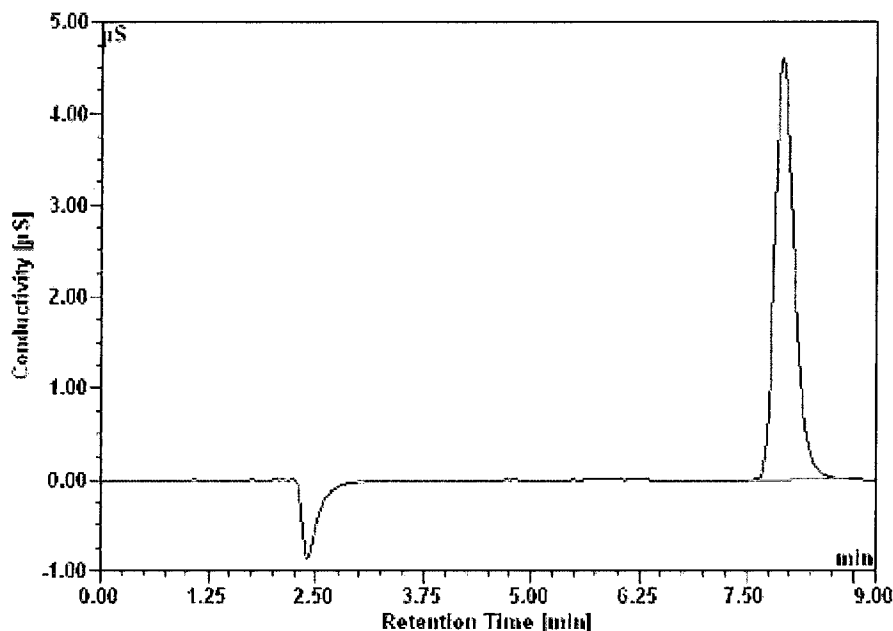
IC Assay NIST SRM 3185 Lot Number: 050517

**Assay Method #2** **10,000 ± 50 µg/mL**

Calculated NIST SRM Lot Number: See Sec. 4.2

- 4.2 BALANCE CALIBRATION** - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).
- 4.3 THERMOMETER CALIBRATION** - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.
- 4.4 GLASSWARE CALIBRATION** - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

## 5.0 Chromatogram



### Dionex ICS-1000 Ion Chromatograph

Analytical Column:	IonPac AS22 4 x 250 mm	Eluent:	4.5 mM Na <sub>2</sub> CO <sub>3</sub> /1.4 mM NaHCO <sub>3</sub>
Guard Column:	IonPac AG22 4 x 50mm	Eluent Flow Rate:	1.2 mL/min
Anion Self-Regenerating Suppressor:	ASRS 300 4mm	Column Temp:	N/A
		Cell Temp:	35 °C
Cation Self-Regenerating Suppressor:	N/A	Scale X-Axis:	minutes
		Scale Y-Axis:	10 µS scale
Suppressor Current:	31mA	Concentration:	20.00 µg/g

## 6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:  
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Electrophoresis, Potentiometry, Wet Chemistry and Voltammetry  
For the validation of analytical methods  
For the preparation of "working reference samples"  
For interference studies and the determination of correction coefficients  
For detection limit and linearity studies  
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.



300 Technology Drive  
Christiansburg, VA 24073 - USA  
inorganicventures.com

# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 • 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

Exp. Mar. 2014

- 1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



- 2.0 **DESCRIPTION OF CRM** Ion Chromatography 10,000 µg/mL Phosphate as P in H<sub>2</sub>O
- Catalog Number: ICPPO410K
- Lot Number: E2-POX01090MCA
- Starting Material: NH<sub>4</sub>H<sub>2</sub>PO<sub>4</sub>
- Starting Material Purity (%): 99.9990
- Starting Material Lot No.: 11026CH
- Matrix: H<sub>2</sub>O

## 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Concentration:** 9,966 ± 44 µg/mL - no weighted mean

**Certified Density:** 1.019 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 \left[ \frac{(\sum s_i)^2}{n} \right]^{1/2}}{(n)^{1/4}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

## 4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

"Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

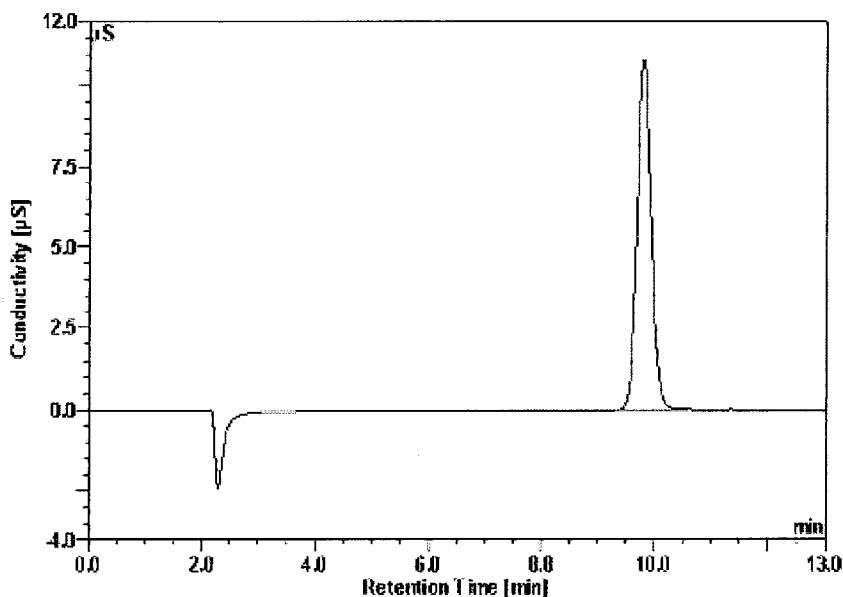
- 4.1 **Assay Method #1** 9,966 ± 12 µg/mL  
IC Assay NIST SRM 3186 Lot Number: 090723
- Assay Method #2** 10,010 ± 30 µg/mL  
Calculated NIST SRM Lot Number: See Sec. 4.2

4.2 **BALANCE CALIBRATION** - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 **THERMOMETER CALIBRATION** - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 **GLASSWARE CALIBRATION** - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

## 5.0 Chromatogram



### Dionex ICS-1000 Ion Chromatograph

Analytical Column:	IonPac AS22 4 x 250 mm	Eluent:	4.5 mM Na <sub>2</sub> CO <sub>3</sub> /1.4 mM NaHCO <sub>3</sub>
Guard Column:	IonPac AG22 4 x 50mm	Eluent Flow Rate:	1.2 mL/min
Anion Self-Regenerating Suppressor:	ASRS 300 4mm	Column Temp:	N/A
		Cell Temp:	35 °C
Cation Self-Regenerating Suppressor:	N/A	Scale X-Axis:	minutes
		Scale Y-Axis:	12 µS scale
Suppressor Current:	31mA	Concentration:	~30 µg/g

## 6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:  
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Electrophoresis, Potentiometry, Wet Chemistry and Voltammetry  
For the validation of analytical methods  
For the preparation of "working reference samples"  
For interference studies and the determination of correction coefficients  
For detection limit and linearity studies  
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.



300 Technology Drive  
Christiansburg, VA 24073 - USA  
inorganicventures.com

# CERTIFICATE OF ANALYSIS

Exp. Mar. 2014

tel: 800.669.6799 - 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

- 1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



- 2.0 **DESCRIPTION OF CRM** Ion Chromatography 10000 µg/mL Nitrite as N in H<sub>2</sub>O
- Catalog Number: ICNNO210K
- Lot Number: D2-NOX02082MCA
- Starting Material: NaNO<sub>2</sub>
- Starting Material Purity (%): 100.0000
- Starting Material Lot No.: 1574
- Matrix: H<sub>2</sub>O

## 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Concentration:** 10,316 ± 69 µg/mL

**Certified Density:** 1.038 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 [(\sum s_i^2)^{1/2}]}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

## 4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

"Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** 10,316 ± 69 µg/mL (avg. of 2 runs)

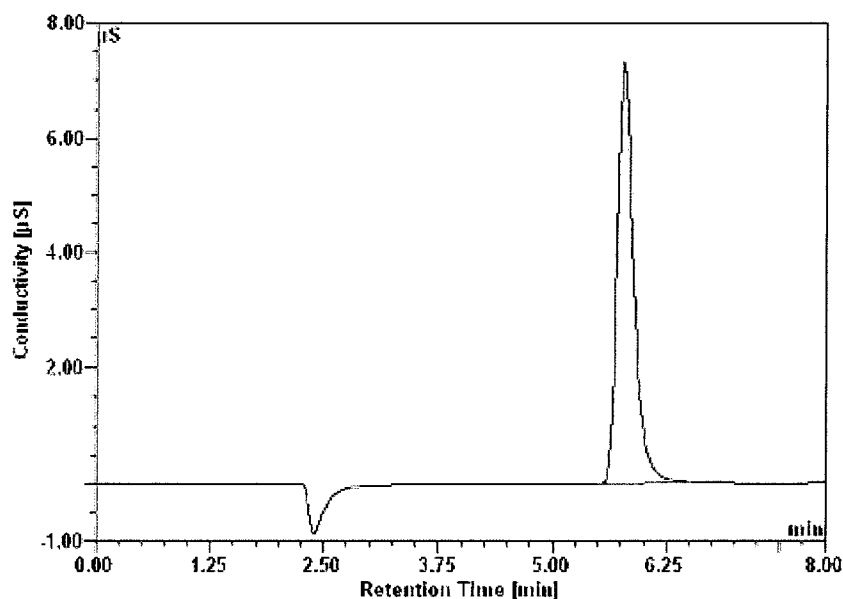
IC Assay NIST SRM 40h Lot Number: 40h

**Assay Method #2** 10,372 ± 52 µg/mL

Calculated NIST SRM Lot Number: See Sec. 4.2

- 4.2 **BALANCE CALIBRATION** - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).
- 4.3 **THERMOMETER CALIBRATION** - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.
- 4.4 **GLASSWARE CALIBRATION** - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

## 5.0 Chromatogram



### Dionex ICS-1000 Ion Chromatograph

Analytical Column:	IonPac AS22 4 x 250 mm	Eluent:	4.5 mM Na <sub>2</sub> CO <sub>3</sub> /1.4 mM NaHCO <sub>3</sub>
Guard Column:	IonPac AG22 4 x 50mm	Eluent Flow Rate:	1.2 mL/min
Anion Self-Regenerating Suppressor:	ASRS 300 4mm	Column Temp:	N/A
Cation Self-Regenerating Suppressor:	N/A	Cell Temp:	35 °C
Suppressor Current:	31mA	Scale X-Axis:	minutes
		Scale Y-Axis:	8 µS scale
		Concentration:	approx. 20 µg/g

## 6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:  
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Electrophoresis, Potentiometry, Wet Chemistry and Voltammetry  
For the validation of analytical methods  
For the preparation of "working reference samples"  
For interference studies and the determination of correction coefficients  
For detection limit and linearity studies  
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.





300 Technology Drive  
Christiansburg, VA 24073 - USA  
inorganicventures.com

# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 - 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

Exp. Mar 2014

- 1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



- 2.0 **DESCRIPTION OF CRM**      Ion Chromatography    10,000 µg/mL Fluoride in H<sub>2</sub>O
- Catalog Number:                    ICF10K
- Lot Number:                        E2-F01059MCA
- Starting Material:                NaF
- Starting Material Purity (%):    44.8000
- Starting Material Lot No.:        1655
- Matrix:                              H<sub>2</sub>O

### 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Concentration:**    10,084 ± 46 µg/mL

**Certified Density:**            1.021 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2 [(\sum s_i^2)^{1/2}]}{(n)^{1/2}}$$

$\sum s_i$  = The summation of all significant estimated errors

(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

### 4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

"Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties."  
(ISO VIM, 2nd ed., 1993, definition 6.10)

This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1                    **Assay Method #1**                    **10,084 ± 17 µg/mL**

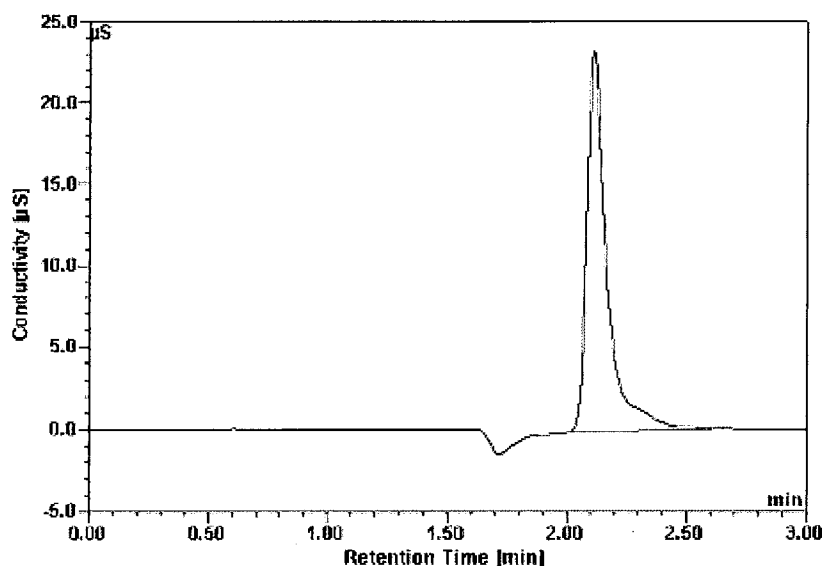
IC Assay NIST SRM 3183    Lot Number: 050721

4.2 **BALANCE CALIBRATION** - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 **THERMOMETER CALIBRATION** - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 **GLASSWARE CALIBRATION** - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

## 5.0 Chromatogram



### Dionex DX-120 Ion Chromatograph

Analytical Columnn:	IonPac AS14 4 x 250mm	Eluent:	9mM Na <sub>2</sub> CO <sub>3</sub>
Guard Columnn:	IonPac AG14 4 x 50mm	Eluent Flow Rate:	1.2 mL/min
Anion Self-Regenerating Suppressor:	ASRS 300 4mm	Column Temp:	N/A
		Cell Temp:	35 °C
Cation Self-Regenerating Suppressor:	N/A	Scale X-Axis:	minutes
		Scale Y-Axis:	25 µS scale
Suppressor Current:	100mA	Concentration:	approx. 10 µg/g

## 6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:  
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Electrophoresis, Potentiometry, Wet Chemistry and Voltammetry  
For the validation of analytical methods  
For the preparation of "working reference samples"  
For interference studies and the determination of correction coefficients  
For detection limit and linearity studies  
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.



300 Technology Drive  
Christiansburg, VA 24073 - USA  
inorganicventures.com

# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 - 540.585.3030

fax: 540.585.3012

info@inorganicventures.com

Exp. Mar. 2014

- 1.0** **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."



- 2.0** **DESCRIPTION OF CRM**      **Ion Chromatography 10,000 µg/mL Bromide IC in H<sub>2</sub>O**
- Catalog Number:                      ICBR10K
- Lot Number:                              **E2-BR01090MCA**
- Starting Material:                      KBr
- Starting Material Purity (%):      99.0000
- Starting Material Lot No.:          09014BY
- Matrix:                                      H<sub>2</sub>O

## **3.0**      **CERTIFIED VALUES AND UNCERTAINTIES**

**Certified Concentration:**      10,070 ± 48 µg/mL - weighted mean

**Certified Density:**              1.009 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

( $\bar{x}$ ) = mean

$x_i$  = individual results

n = number of measurements

$$\text{Uncertainty } (\pm) = 2 \left[ \sum (s_i)^2 \right]^{1/2}$$

2 = the coverage factor.

$\left[ \sum (s_i)^2 \right]^{1/2}$  = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

## **4.0**      **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

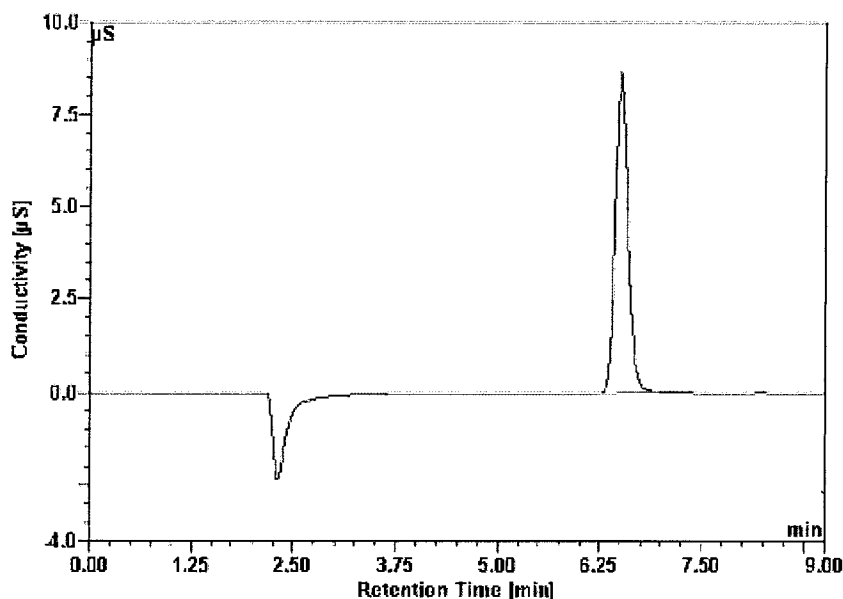
"Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- 4.1**      **Assay Method #1**                      **10,069 ± 14 µg/mL**  
IC Assay NIST SRM 3184      Lot Number: 020701
- Assay Method #2**                      **10,071 ± 21 µg/mL**  
Volhard NIST SRM 999b      Lot Number: 999b

- 4.2 **BALANCE CALIBRATION** - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).
- 4.3 **THERMOMETER CALIBRATION** - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.
- 4.4 **GLASSWARE CALIBRATION** - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

## 5.0 Chromatogram



### Dionex ICS-1000 Ion Chromatograph

Analytical Columnn:	IonPac AS22 4 x 250mm	Eluent:	4.5mM Na <sub>2</sub> CO <sub>3</sub> / 1.4mM NaHCO <sub>3</sub>
Guard Columnn:	IonPac AG22 4 x 50mm	Eluent Flow Rate:	1.2 mL/min
Anion Self-Regenerating Suppressor:	ASRS 300 4mm	Column Temp:	N/A
		Cell Temp:	35 °C
Cation Self-Regenerating Suppressor:	N/A	Scale X-Axis:	minutes
		Scale Y-Axis:	10 µS scale
Suppressor Current:	31mA	Concentration:	approx. 10 µg/g

## 6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:  
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Electrophoresis, Potentiometry, Wet Chemistry and Voltammetry  
For the validation of analytical methods  
For the preparation of "working reference samples"  
For interference studies and the determination of correction coefficients  
For detection limit and linearity studies  
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.



**Ion Chromatography  
EPA Method 300.0 / SW-846 Method 9056**

Analysis Date: 11/19/2013

Analyst: Nick Philpot

TDF #: A-025 Project Name: 2013 NOV Waters Rico-Argentina LIMS #: C131107

**Standards Traceability Documentation**

Vendor	Standard	LIMS ID #:	Expires	Purpose
Inorganic Ventures	QCP-QCS-5	3020147	1-1-2014	ICV / LCS
Inorganic Ventures	10,000 ppm Cl	3020148	1-1-2014	Calibration
Inorganic Ventures	10,000 ppm NO <sub>2</sub>	3020151	1-1-2014	Calibration
Inorganic Ventures	10,000 ppm Br	3020150	1-1-2014	Calibration
Inorganic Ventures	10,000 ppm PO <sub>4</sub>	3020153	1-1-2014	Calibration
Inorganic Ventures	10,000 ppm F	3020149	1-1-2014	Calibration
Inorganic Ventures	10,000 ppm SO <sub>4</sub>	3020154	1-1-2014	Calibration
Inorganic Ventures	10,000 ppm NO <sub>3</sub>	3020152	1-1-2014	Calibration
ESAT	Cl + SO <sub>4</sub> + F	3030401	1-1-2014	Spike

**Calibration Standards**

Cal Stock LIMS ID #: 3022102 Prepared: 02/01/2013

Exp: 02/01/2014

Name	F <sup>-</sup> mg/L	Cl <sup>-</sup> mg/L	Br <sup>-</sup> mg/L	NO <sub>2</sub> -N g/L	NO <sub>3</sub> -N mg/L	PO <sub>4</sub> mg/L	SO <sub>4</sub> <sup>-</sup> mg/L
Stock	20	200	50	50	50	20	500
Std. 1	0.2	2	0.5	0.5	0.5	0.2	5.0
Std. 2	0.4	4	1	1	1	0.4	10
Std. 3	1	10	2.5	2.5	2.5	1	25
Std. 4	4	40	10	10	10	4	100
Std. 5	10	100	25	25	25	10	250

**Instrument Analysis Parameters**

Column Press: Approx 1850 Eluent Cond: approx 0.00 Eluent Prep. Date: 11/19/2013

Cal. Date: 11/19/2013

Cal. By: NP

**Analytical Run Information**

CCV LIMS ID #: 3022101

Prepared: 02-01-2013

Exp: prepared as needed

Spiked Sample ID: C131107-03 mL Sample: 10  
mL Spike: varies

Analytical Batch ID: 1311056

Sequence ID: 1311068

Upload Date: 11/20/2013

Upload By: NP

Peer Review Date: 12/10/13

By: SV

## ANALYSIS SEQUENCE

1311068

Instrument: ESAT Dionex IC

Sequence Date: 11/20/13 11:41

Printed: 11/20/2013 11:43:09AM

Lab Number	Dilut. Factor	Analysis	STD ID	Sample/Std Name	EPA Tag ID	Source Sple	Comments
1311068-ICV1		QC	3022101	Initial Cal Check		-	
1311068-ICB1		QC		Initial Cal Blank		-	
1311068-SCV1		QC	3020147	Secondary Cal Check		-	
1311068-IBL1		QC		Instrument Blank		-	
1311056-BS1		QC		LCS		-	
1311056-BLK1		QC		Blank		-	
1311056-DUP1		QC		Duplicate		C131107-03	
1311056-MS1		QC		Matrix Spike		C131107-03	
C131107-03 A		nions by Ion Chromatograph		CHV-101U	8-C		
C131107-06 A		nions by Ion Chromatograph		DR-1	8-C		
C131107-11 A		nions by Ion Chromatograph		DR-3	8-C		
C131107-18 A		nions by Ion Chromatograph		DR-6	8-C		
1311068-CCV1		QC	3022101	Calibration Check		-	
1311068-CCB1		QC		Calibration Blank		-	
C131107-21 A		nions by Ion Chromatograph		DR-7	8-C		
C131107-24 A		nions by Ion Chromatograph		MW-109S	8-C		
C131107-27 A		nions by Ion Chromatograph		MW-110	8-C		
1311068-CCV2		QC	3022101	Calibration Check		-	
1311068-CCB2		QC		Calibration Blank		-	

# PREPARATION BENCH SHEET

1311056

TechLaw, Inc. - ESAT Region 8

Printed: 11/18/2013 9:11:29AM

Matrix: Water

Date Prepared: 11/18/13 09:10 By: NP

Prepared using: WETCHEM - No Prep Req

Lab Number	Analysis	EPA Tag ID	Initial (mL)	Final (mL)	Spike1 ID	ul Spike1	Spike2 ID	ul Spike2	Source ID	QC Code	Extraction Comments
1311056-BLK1	QC		10	10						Blank	
1311056-BS1	QC		10	10	3030401	100				LCS	
1311056-DUP1	QC		10	10					C131107-03	Duplicate	
1311056-MS1	QC		10	10	3030401	100			C131107-03	Matrix Spike	
C131107-03 A	nions by Ion Chromatograph	8-C	10	10						CHV-101U	10 x
C131107-06 A	nions by Ion Chromatograph	8-C	10	10						DR-1	
C131107-11 A	nions by Ion Chromatograph	8-C	10	10						DR-3	10 x
C131107-18 A	nions by Ion Chromatograph	8-C	10	10						DR-6	10 x
C131107-21 A	nions by Ion Chromatograph	8-C	10	10						DR-7	
C131107-24 A	nions by Ion Chromatograph	8-C	10	10						MW-109S	10 x
C131107-27 A	nions by Ion Chromatograph	8-C	10	10						MW-110	10 x

A-025

Sequence: 1311056\_C131107\_NP  
Operator: US ENVIRONMENTAL PRO

Page 1 of 2  
Printed: 11/20/2013 9:25:30 AM

Title: Right Sequence

Datasource: D9VVZ191\_local



























Location: Right\_system\Sequences and Data\2013 ESAT

Timebase: Right\_system

#Samples: 26

Created: 11/18/2013 12:05:00 PM by US ENVIRONMENTAL PRO

Last Update: 11/20/2013 9:20:52 AM by US ENVIRONMENTAL PRO

No.	Pos.	Name	Dil. Factor	Type	Inj. Date/Time	Inj. Vol.	Status	Method
1	1	 Std 0	1.0000	Unknown	11/19/2013 4:47:25 PM	25.0	Finished	Met Anions Rt
2	2	 Std 1	1.0000	Standard	11/19/2013 5:05:30 PM	25.0	Finished	Met Anions Rt
3	3	 Std 2	1.0000	Standard	11/19/2013 5:23:35 PM	25.0	Finished	Met Anions Rt
4	4	 Std 3	1.0000	Standard	11/19/2013 5:41:39 PM	25.0	Finished	Met Anions Rt
5	5	 Std 4	1.0000	Standard	11/19/2013 5:59:42 PM	25.0	Finished	Met Anions Rt
6	6	 Std 5	1.0000	Standard	11/19/2013 6:17:47 PM	25.0	Finished	Met Anions Rt
7	5	 SEQ-ICV1	1.0000	Unknown	11/19/2013 6:35:51 PM	25.0	Finished	Met Anions Rt
8	1	 SEQ-ICB1	1.0000	Unknown	11/19/2013 6:53:55 PM	25.0	Finished	Met Anions Rt
9	7	 SEQ-SCV1	1.0000	Unknown	11/19/2013 7:12:00 PM	25.0	Finished	Met Anions Rt
10	1	 SEQ-IBL1	1.0000	Unknown	11/19/2013 7:30:05 PM	25.0	Finished	Met Anions Rt
11	8	 1311056-BS1	1.0000	Unknown	11/19/2013 7:48:09 PM	25.0	Finished	Met Anions Rt
12	9	 1311056-BLK1	1.0000	Unknown	11/19/2013 8:06:14 PM	25.0	Finished	Met Anions Rt
13	10	 C131107-03 @10x	1.0000	Unknown	11/19/2013 8:24:19 PM	25.0	Finished	Met Anions Rt
14	11	 1311056-DUP1 @10x	1.0000	Unknown	11/19/2013 8:42:24 PM	25.0	Finished	Met Anions Rt
15	12	 1311056-MS1 @10x	1.0000	Unknown	11/19/2013 9:00:29 PM	25.0	Finished	Met Anions Rt
16	13	 C131107-06	1.0000	Unknown	11/19/2013 9:18:33 PM	25.0	Finished	Met Anions Rt
17	14	 C131107-11 @10x	1.0000	Unknown	11/19/2013 9:36:38 PM	25.0	Finished	Met Anions Rt
18	15	 C131107-18 @10x	1.0000	Unknown	11/19/2013 9:54:42 PM	25.0	Finished	Met Anions Rt
19	5	 SEQ-CCV	1.0000	Unknown	11/19/2013 10:12:47 PM	25.0	Finished	Met Anions Rt
20	1	 SEQ-CCB	1.0000	Unknown	11/19/2013 10:30:51 PM	25.0	Finished	Met Anions Rt
21	16	 C131107-21	1.0000	Unknown	11/19/2013 10:48:56 PM	25.0	Finished	Met Anions Rt
22	17	 C131107-24 @10x	1.0000	Unknown	11/19/2013 11:07:00 PM	25.0	Finished	Met Anions Rt
23	18	 C131107-27 @10x	1.0000	Unknown	11/19/2013 11:25:04 PM	25.0	Finished	Met Anions Rt
24	5	 SEQ-CCV	1.0000	Unknown	11/19/2013 11:43:09 PM	25.0	Finished	Met Anions Rt
25	1	 SEQ-CCB	1.0000	Unknown	11/20/2013 12:01:14 AM	25.0	Finished	Met Anions Rt
26	1	 STOP	1.0000	Unknown	11/20/2013 12:16:50 AM	25.0	Finished	Met Anions Rt



## ANION SUMMARY REPORT

No.	Name	Time min Fluoride ECD_1	Area µS*min Fluoride ECD_1	Rel.Area % Fluoride ECD_1	Height µS Fluoride ECD_1	Rel.Height % Fluoride ECD_1	Amount mg/L Fluoride ECD_1
1	Std 0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	Std 1	3.663	0.0587	3.52	0.33	5.37	0.2198
3	Std 2	3.663	0.1130	3.37	0.65	5.29	0.4024
4	Std 3	3.670	0.2834	3.29	1.64	5.09	0.9702
5	Std 4	3.663	1.2354	2.98	7.31	4.53	4.0086
6	Std 5	3.647	3.3109	2.87	19.45	4.47	9.9990
7	SEQ-ICV1	3.653	1.2339	2.97	7.32	4.53	4.0041
8	SEQ-ICB1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
9	SEQ-SCV1	3.653	3.4368	7.92	20.99	13.05	10.3395
10	SEQ-IBL1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
11	1311056-BS1	3.653	1.6420	6.93	9.72	9.69	5.2445
12	1311056-BLK1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
13	C131107-03 @10x	3.650	0.0574	0.52	0.33	1.15	0.2155
14	1311056-DUP1 @10x	3.663	0.0588	0.53	0.33	1.17	0.2200
15	1311056-MS1 @10x	3.653	1.6295	4.82	9.58	7.68	5.2069
16	C131107-06	3.657	0.0319	0.62	0.18	1.37	0.1294
17	C131107-11 @10x	3.660	0.0677	0.65	0.38	1.44	0.2499
18	C131107-18 @10x	3.650	0.0716	0.64	0.39	1.37	0.2632
19	SEQ-CCV	3.653	1.2361	2.96	7.26	4.56	4.0107
20	SEQ-CCB	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
21	C131107-21	3.653	0.1009	0.57	0.52	1.13	0.3618
22	C131107-24 @10x	3.653	0.0590	0.34	0.28	0.63	0.2208
23	C131107-27 @10x	3.657	0.0713	0.78	0.41	1.75	0.2621
24	SEQ-CCV	3.650	1.2389	2.95	7.31	4.56	4.0193
25	SEQ-CCB	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
26	STOP	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Sum:	69.467	15.937	49.239	94.370	78.844	50.348
	Average:	3.656	0.839	2.592	4.967	4.150	2.650
	Rel.Std.Dev:	0.167 %	128.774 %	84.890 %	130.292 %	79.296 %	123.914 %

No.	Name	Time min Chloride ECD_1	Area µS*min Chloride ECD_1	Rel.Area % Chloride ECD_1	Height µS Chloride ECD_1	Rel.Height % Chloride ECD_1	Amount mg/L Chloride ECD_1
1	Std 0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	Std 1	5.33	0.394	23.56	2.092	34.13	2.4838
3	Std 2	5.32	0.797	23.73	4.240	34.39	4.1272
4	Std 3	5.34	2.057	23.89	11.390	35.28	9.1933
5	Std 4	5.35	10.343	24.93	60.460	37.45	40.2176
6	Std 5	5.37	29.054	25.18	167.321	38.43	99.9770
7	SEQ-ICV1	5.33	10.371	24.96	60.571	37.51	40.3146
8	SEQ-ICB1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

9	SEQ-SCV1	5.31	3.375	7.78	18.477	11.49	14.3807
10	SEQ-IBL1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
11	1311056-BS1	5.31	5.996	25.29	34.025	33.95	24.3970
12	1311056-BLK1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
13	C131107-03 @10x	5.29	0.017	0.16	0.089	0.31	0.9405
14	1311056-DUP1 @10x	5.31	0.017	0.15	0.090	0.32	0.9389
15	1311056-MS1 @10x	5.32	5.794	17.15	32.598	26.16	23.6406
16	C131107-06	5.30	0.194	3.80	1.002	7.59	1.6668
17	C131107-11 @10x	5.31	0.007	0.06	0.032	0.12	0.8961
18	C131107-18 @10x	5.30	0.007	0.06	0.037	0.13	0.8981
19	SEQ-CCV	5.32	10.410	24.95	59.877	37.61	40.4542
20	SEQ-CCB	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
21	C131107-21	5.30	0.227	1.29	1.160	2.52	1.8022
22	C131107-24 @10x	5.30	0.035	0.20	0.177	0.40	1.0114
23	C131107-27 @10x	5.31	0.031	0.34	0.154	0.67	0.9954
24	SEQ-CCV	5.32	10.473	24.98	60.390	37.66	40.6746
25	SEQ-CCB	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
26	STOP	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Sum:		101.037	89.598	252.464	514.182	376.144	349.010
Average:		5.318	4.716	13.288	27.062	19.797	18.369
Rel.Std.Dev:		0.343 %	153.263 %	88.163 %	154.223 %	86.679 %	138.189 %

No.	Name	Time min Nitrite ECD_1	Area µS*min Nitrite ECD_1	Rel.Area % Nitrite ECD_1	Height µS Nitrite ECD_1	Rel.Height % Nitrite ECD_1	Amount mg/L Nitrite ECD_1
1	Std 0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	Std 1	6.403	0.218	13.042	0.966	15.761	0.580
3	Std 2	6.397	0.436	12.981	1.911	15.504	1.019
4	Std 3	6.413	1.107	12.856	4.863	15.065	2.366
5	Std 4	6.407	4.995	12.038	22.084	13.680	10.040
6	Std 5	6.400	12.883	11.163	55.999	12.862	24.995
7	SEQ-ICV1	6.383	4.978	11.983	22.110	13.694	10.008
8	SEQ-ICB1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
9	SEQ-SCV1	6.390	7.528	17.344	32.816	20.406	14.929
10	SEQ-IBL1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
11	1311056-BS1	6.380	4.933	20.810	21.688	21.642	9.920
12	1311056-BLK1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
13	C131107-03 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
14	1311056-DUP1 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
15	1311056-MS1 @10x	6.383	4.813	14.248	21.013	16.863	9.685
16	C131107-06	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
17	C131107-11 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
18	C131107-18 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
19	SEQ-CCV	6.380	4.988	11.956	21.838	13.718	10.027
20	SEQ-CCB	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
21	C131107-21	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

11/20/2013 9:25 AM

22	C131107-24 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
23	C131107-27 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
24	SEQ-CCV	6.377	5.010	11.949	21.963	13.697	10.070
25	SEQ-CCB	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
26	STOP	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<b>Sum:</b>		70.313	51.888	150.369	227.252	172.892	103.638
<b>Average:</b>		6.392	4.717	13.670	20.659	15.717	9.422
<b>Rel.Std.Dev:</b>		0.195 %	75.412 %	21.206 %	74.893 %	18.368 %	73.016 %

No.	Name	Time min Bromide ECD_1	Area µS*min Bromide ECD_1	Rel.Area % Bromide ECD_1	Height µS Bromide ECD_1	Rel.Height % Bromide ECD_1	Amount mg/L Bromide ECD_1
1	Std 0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	Std 1	7.693	0.042	2.510	0.168	2.737	0.519
3	Std 2	7.687	0.085	2.537	0.333	2.705	1.037
4	Std 3	7.703	0.202	2.349	0.813	2.518	2.428
5	Std 4	7.670	0.866	2.088	3.511	2.175	10.019
6	Std 5	7.630	2.299	1.992	9.560	2.196	24.998
7	SEQ-ICV1	7.637	0.868	2.090	3.516	2.178	10.042
8	SEQ-ICB1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
9	SEQ-SCV1	7.643	5.047	11.627	20.625	12.825	49.960
10	SEQ-IBL1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
11	1311056-BS1	7.637	0.855	3.608	3.416	3.409	9.897
12	1311056-BLK1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
13	C131107-03 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
14	1311056-DUP1 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
15	1311056-MS1 @10x	7.640	0.827	2.448	3.278	2.630	9.584
16	C131107-06	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
17	C131107-11 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
18	C131107-18 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
19	SEQ-CCV	7.633	0.873	2.092	3.470	2.180	10.092
20	SEQ-CCB	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
21	C131107-21	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
22	C131107-24 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
23	C131107-27 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
24	SEQ-CCV	7.637	0.877	2.092	3.489	2.176	10.142
25	SEQ-CCB	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
26	STOP	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<b>Sum:</b>		84.210	12.842	35.433	52.179	37.728	138.717
<b>Average:</b>		7.655	1.167	3.221	4.744	3.430	12.611
<b>Rel.Std.Dev:</b>		0.358 %	121.931 %	87.676 %	123.177 %	91.530 %	111.429 %

No.	Name	Time min Nitrate	Area µS*min Nitrate	Rel.Area % Nitrate	Height µS Nitrate	Rel.Height % Nitrate	Amount mg/L Nitrate
-----	------	------------------------	---------------------------	--------------------------	-------------------------	----------------------------	---------------------------

		ECD_1	ECD_1	ECD_1	ECD_1	ECD_1	ECD_1
1	Std 0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	Std 1	8.623	0.222	13.296	0.792	12.919	0.564
3	Std 2	8.613	0.438	13.039	1.566	12.703	1.011
4	Std 3	8.623	1.121	13.013	3.971	12.302	2.401
5	Std 4	8.570	5.218	12.576	18.721	11.596	10.026
6	Std 5	8.500	14.987	12.987	52.275	12.007	24.997
7	SEQ-ICV1	8.537	5.231	12.590	18.746	11.611	10.048
8	SEQ-ICB1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
9	SEQ-SCV1	8.557	5.632	12.975	19.561	12.164	10.740
10	SEQ-IBL1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
11	1311056-BS1	8.533	5.635	23.771	19.949	19.906	10.746
12	1311056-BLK1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
13	C131107-03 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
14	1311056-DUP1 @10x	8.583	0.004	0.035	0.015	0.053	0.107
15	1311056-MS1 @10x	8.540	5.472	16.199	19.255	15.452	10.465
16	C131107-06	8.600	0.023	0.459	0.081	0.610	0.148
17	C131107-11 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
18	C131107-18 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
19	SEQ-CCV	8.530	5.255	12.597	18.497	11.619	10.091
20	SEQ-CCB	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
21	C131107-21	8.593	0.020	0.113	0.067	0.146	0.141
22	C131107-24 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
23	C131107-27 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
24	SEQ-CCV	8.533	5.282	12.597	18.602	11.601	10.136
25	SEQ-CCB	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
26	STOP	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Sum:		119.937	54.538	156.246	192.098	144.689	101.622
Average:		8.567	3.896	11.160	13.721	10.335	7.259
Rel.Std.Dev:		0.463 %	104.913 %	59.388 %	104.193 %	56.971 %	96.721 %

No.	Name	Time min	Area μS*min	Rel.Area %	Height μS	Rel.Height %	Amount mg/L
		Phosphate ECD_1	Phosphate ECD_1	Phosphate ECD_1	Phosphate ECD_1	Phosphate ECD_1	Phosphate ECD_1
1	Std 0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	Std 1	11.673	0.015	0.915	0.043	0.705	0.212
3	Std 2	11.627	0.049	1.465	0.123	0.999	0.425
4	Std 3	11.640	0.134	1.553	0.340	1.054	0.951
5	Std 4	11.620	0.644	1.553	1.607	0.995	4.012
6	Std 5	11.587	1.734	1.503	4.432	1.018	9.999
7	SEQ-ICV1	11.603	0.639	1.538	1.597	0.989	3.981
8	SEQ-ICB1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
9	SEQ-SCV1	11.590	5.032	11.592	13.327	8.287	25.129
10	SEQ-IBL1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
11	1311056-BS1	11.603	0.813	3.428	2.022	2.017	4.982

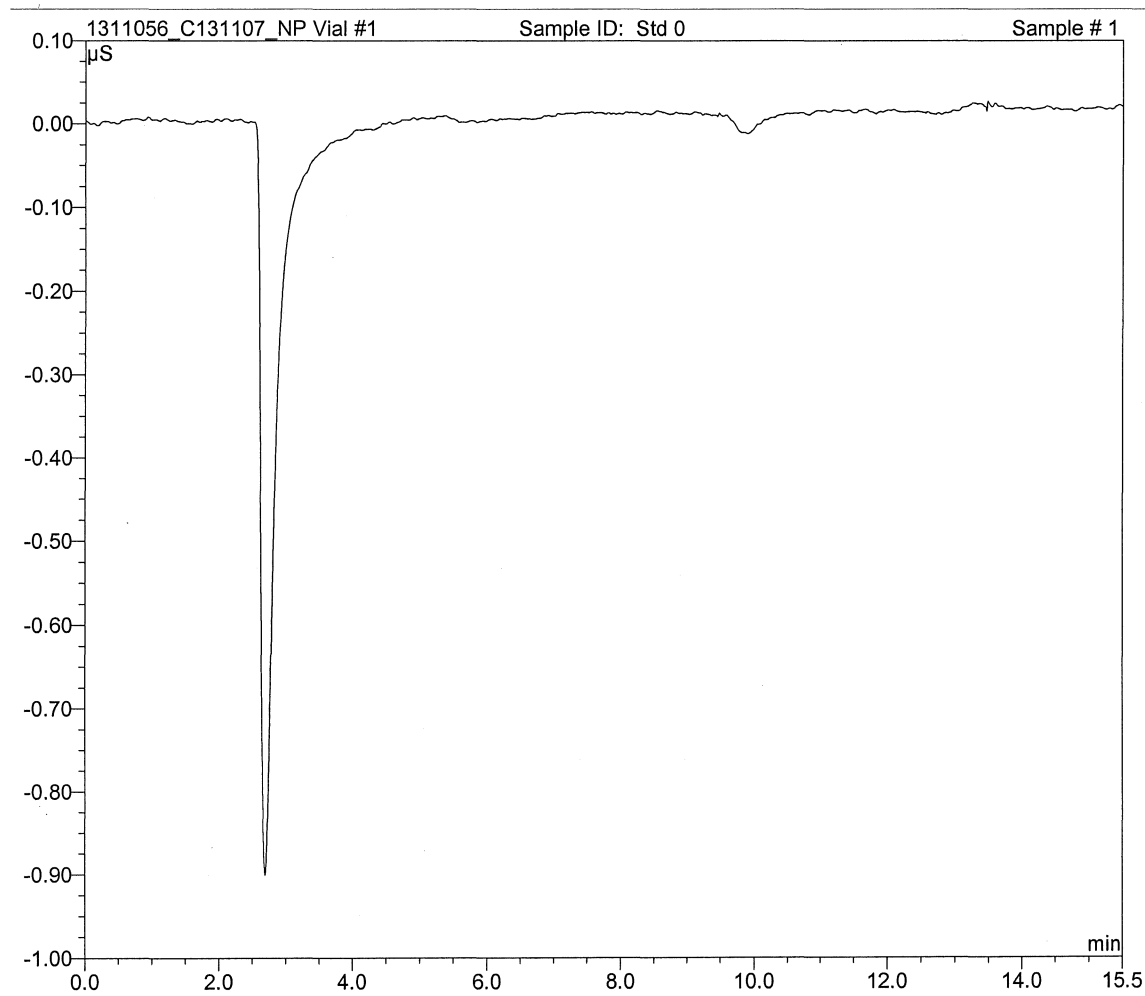
12	1311056-BLK1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
13	C131107-03 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
14	1311056-DUP1 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
15	1311056-MS1 @10x	11.607	0.723	2.139	1.725	1.384	4.465
16	C131107-06	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
17	C131107-11 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
18	C131107-18 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
19	SEQ-CCV	11.593	0.633	1.517	1.545	0.970	3.946
20	SEQ-CCB	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
21	C131107-21	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
22	C131107-24 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
23	C131107-27 @10x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
24	SEQ-CCV	11.580	0.628	1.499	1.541	0.961	3.919
25	SEQ-CCB	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
26	STOP	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Sum:		127.723	11.044	28.702	28.303	19.381	62.023
Average:		11.611	1.004	2.609	2.573	1.762	5.638
Rel.Std.Dev:		0.236 %	141.070 %	116.749 %	146.213 %	124.343 %	124.213 %

No.	Name	Time min Sulfate ECD_1	Area µS*min Sulfate ECD_1	Rel.Area % Sulfate ECD_1	Height µS Sulfate ECD_1	Rel.Height % Sulfate ECD_1	Amount mg/L Sulfate ECD_1
1	Std 0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	Std 1	13.223	0.721	43.160	1.739	28.373	6.073
3	Std 2	13.220	1.440	42.882	3.502	28.408	10.254
4	Std 3	13.243	3.707	43.048	9.259	28.683	23.248
5	Std 4	13.320	18.190	43.839	47.749	29.577	100.473
6	Std 5	13.430	51.133	44.309	126.348	29.020	249.950
7	SEQ-ICV1	13.310	18.225	43.867	47.597	29.479	100.649
8	SEQ-ICB1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
9	SEQ-SCV1	13.303	13.355	30.769	35.016	21.774	75.699
10	SEQ-IBL1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
11	1311056-BS1	13.233	3.831	16.162	9.397	9.378	23.953
12	1311056-BLK1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
13	C131107-03 @10x	13.260	10.965	99.323	27.812	98.532	63.102
14	1311056-DUP1 @10x	13.263	10.998	99.282	27.853	98.462	63.276
15	1311056-MS1 @10x	13.287	14.520	42.987	37.167	29.826	81.754
16	C131107-06	13.237	4.860	95.119	11.935	90.427	29.752
17	C131107-11 @10x	13.263	10.363	99.289	26.040	98.442	59.890
18	C131107-18 @10x	13.253	11.052	99.294	27.826	98.499	63.566
19	SEQ-CCV	13.293	18.325	43.923	46.706	29.339	101.153
20	SEQ-CCB	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
21	C131107-21	13.293	17.257	98.024	44.292	96.208	95.763
22	C131107-24 @10x	13.290	17.254	99.461	44.219	98.971	95.750
23	C131107-27 @10x	13.240	8.982	98.878	22.568	97.580	52.460

24	SEQ-CCV	13.270	18.419	43.930	47.052	29.344	101.627
25	SEQ-CCB	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
26	STOP	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	<b>Sum:</b>	252.233	253.597	1,227.546	644.076	1,070.323	1,398.391
	<b>Average:</b>	13.275	13.347	64.608	33.899	56.333	73.600
	<b>Rel.Std.Dev:</b>	0.360 %	82.046 %	47.195 %	80.604 %	64.068 %	72.746 %

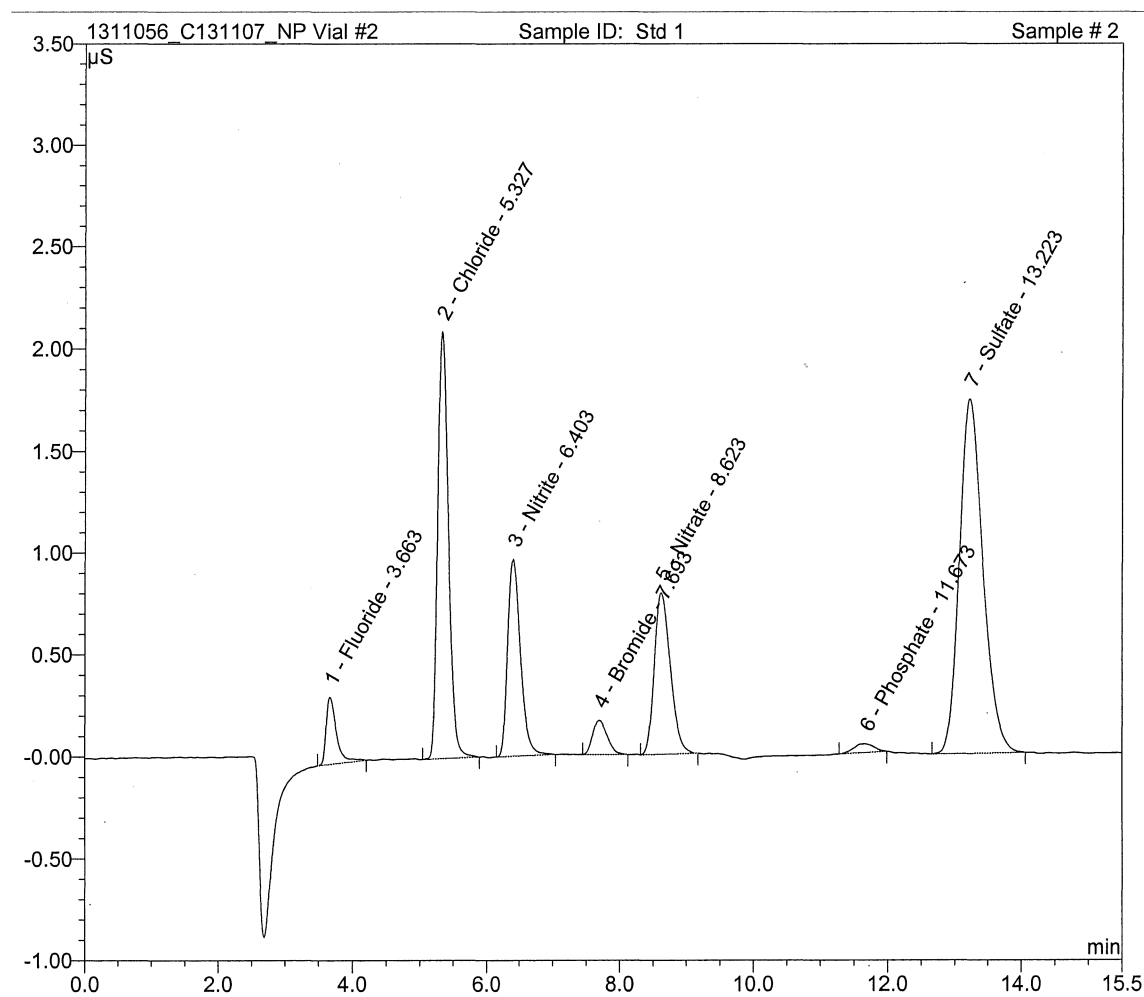
Sample Name:	Std 0	Inj. Vol.:	25.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	1
Inj. Date/Time:	11.19.13 16:47	Run Number:	1

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height $\mu\text{S}$	Amount mg/L
-----	-------------	-----------	------	--------------------------------------	-------------------------	----------------



Sample Name:	Std 1	Inj. Vol.:	25.0
Sample Type:	standard	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	2
Inj. Date/Time:	11.19.13 17:05	Run Number:	2

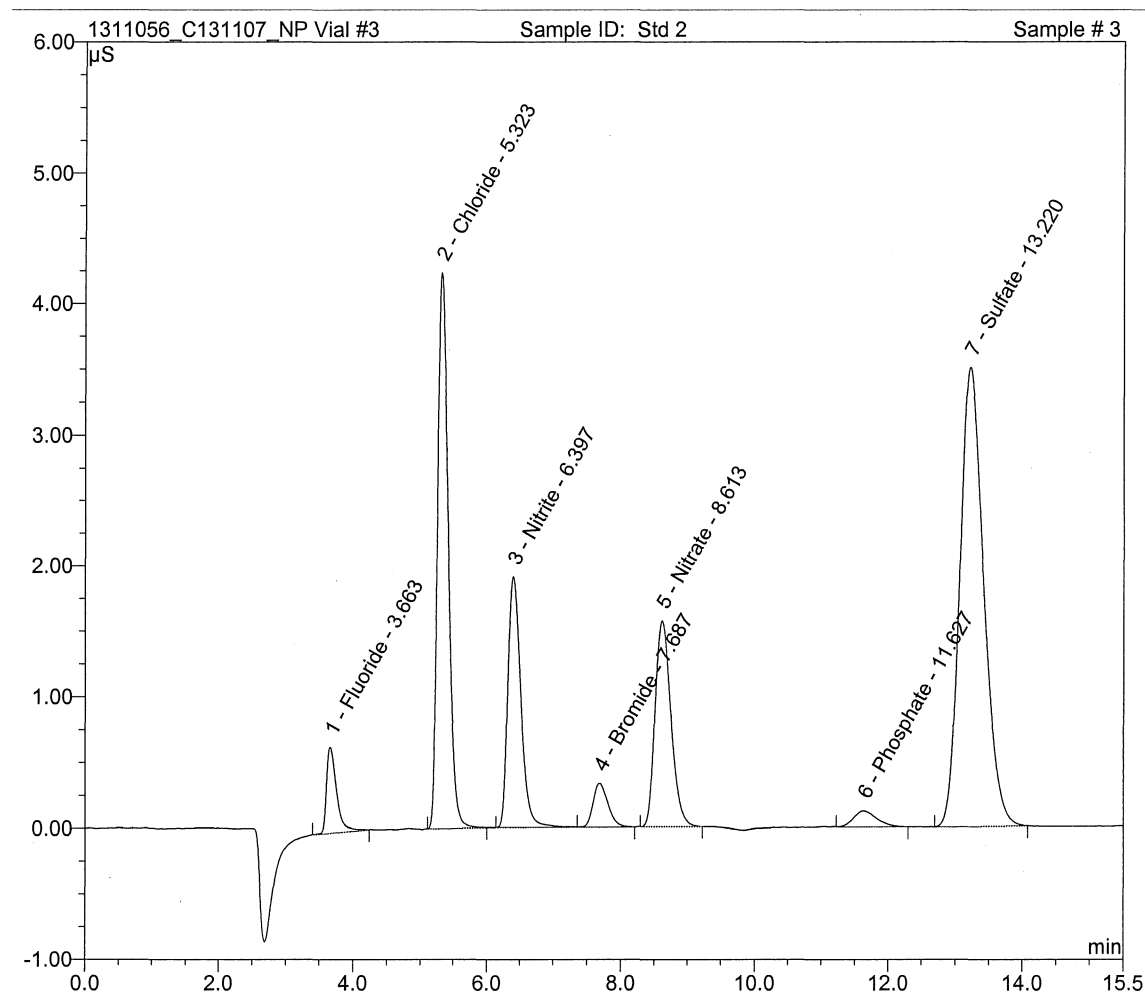
No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height $\mu\text{S}$	Amount mg/L
1	3.66	Fluoride	BMB	0.059	0.329	0.2198
2	5.33	Chloride	BMB	0.394	2.092	2.4838
3	6.40	Nitrite	BMB	0.218	0.966	0.5801
4	7.69	Bromide	BMB	0.042	0.168	0.5190
5	8.62	Nitrate	BMB	0.222	0.792	0.5640
6	11.67	Phosphate	BMB	0.015	0.043	0.2125
7	13.22	Sulfate	BMB	0.721	1.739	6.0728





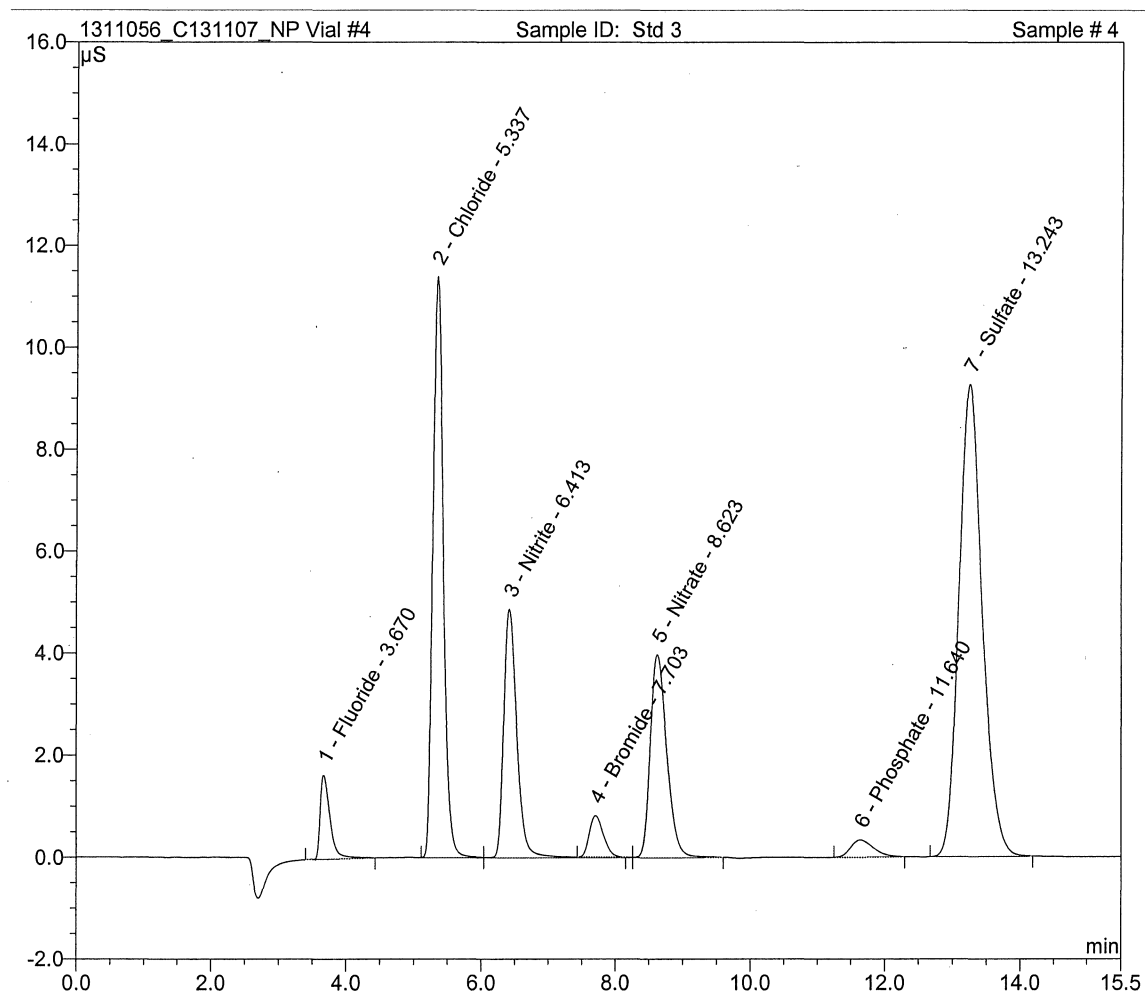
Sample Name:	Std 2	Inj. Vol.:	25.0
Sample Type:	standard	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	3
Inj. Date/Time:	11.19.13 17:23	Run Number:	3

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height $\mu\text{S}$	Amount mg/L
1	3.66	Fluoride	BMB	0.113	0.652	0.4024
2	5.32	Chloride	BMB	0.797	4.240	4.1272
3	6.40	Nitrite	BMB	0.436	1.911	1.0191
4	7.69	Bromide	Rd	0.085	0.333	1.0369
5	8.61	Nitrate	BMB	0.438	1.566	1.0115
6	11.63	Phosphate	BMB	0.049	0.123	0.4251
7	13.22	Sulfate	BMB	1.440	3.502	10.2537



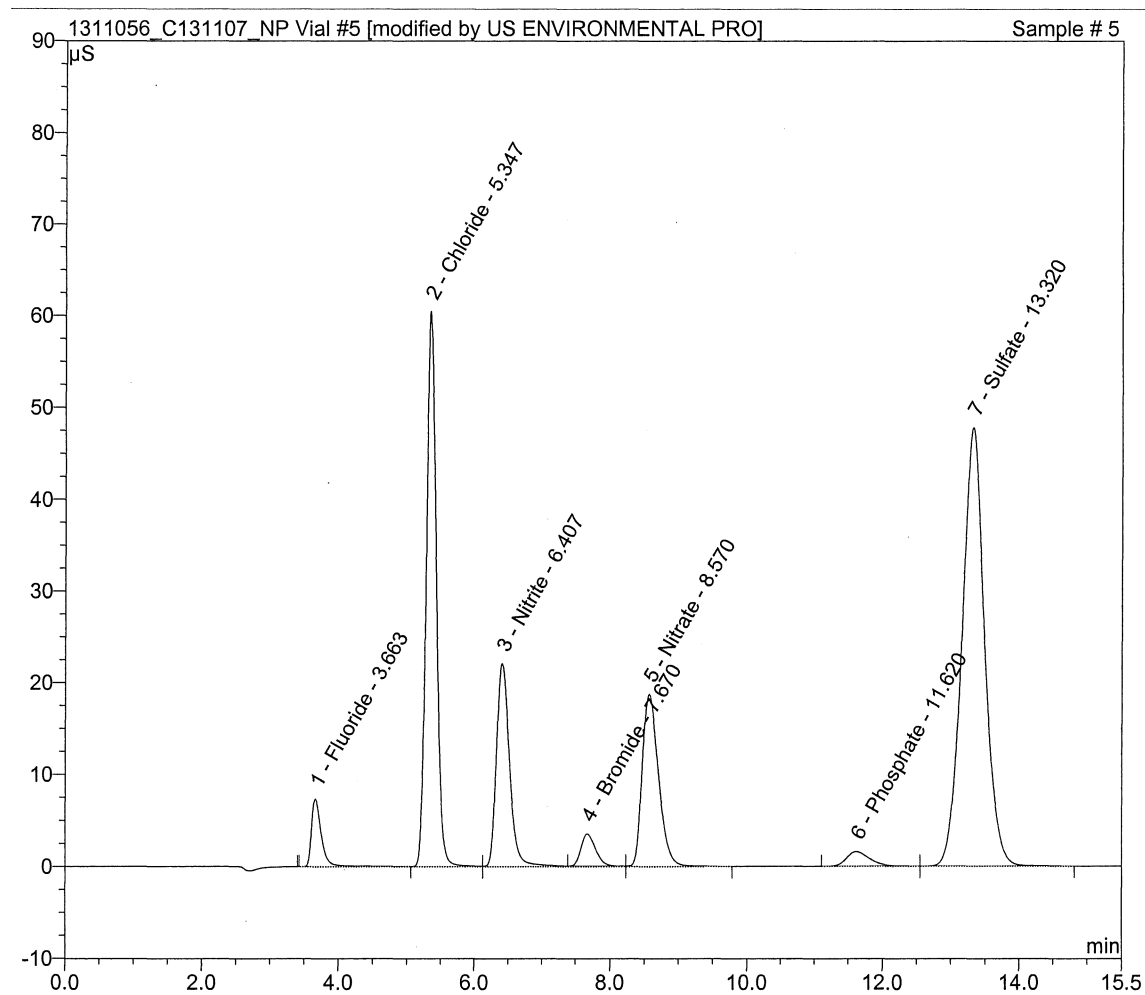
Sample Name:	Std 3	Inj. Vol.:	25.0
Sample Type:	standard	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	4
Inj. Date/Time:	11.19.13 17:41	Run Number:	4

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height $\mu\text{S}$	Amount mg/L
1	3.67	Fluoride	BMB	0.283	1.644	0.9702
2	5.34	Chloride	BM	2.057	11.390	9.1933
3	6.41	Nitrite	M	1.107	4.863	2.3660
4	7.70	Bromide	Rd	0.202	0.813	2.4277
5	8.62	Nitrate	MB	1.121	3.971	2.4010
6	11.64	Phosphate	BMB	0.134	0.340	0.9513
7	13.24	Sulfate	BMB	3.707	9.259	23.2482



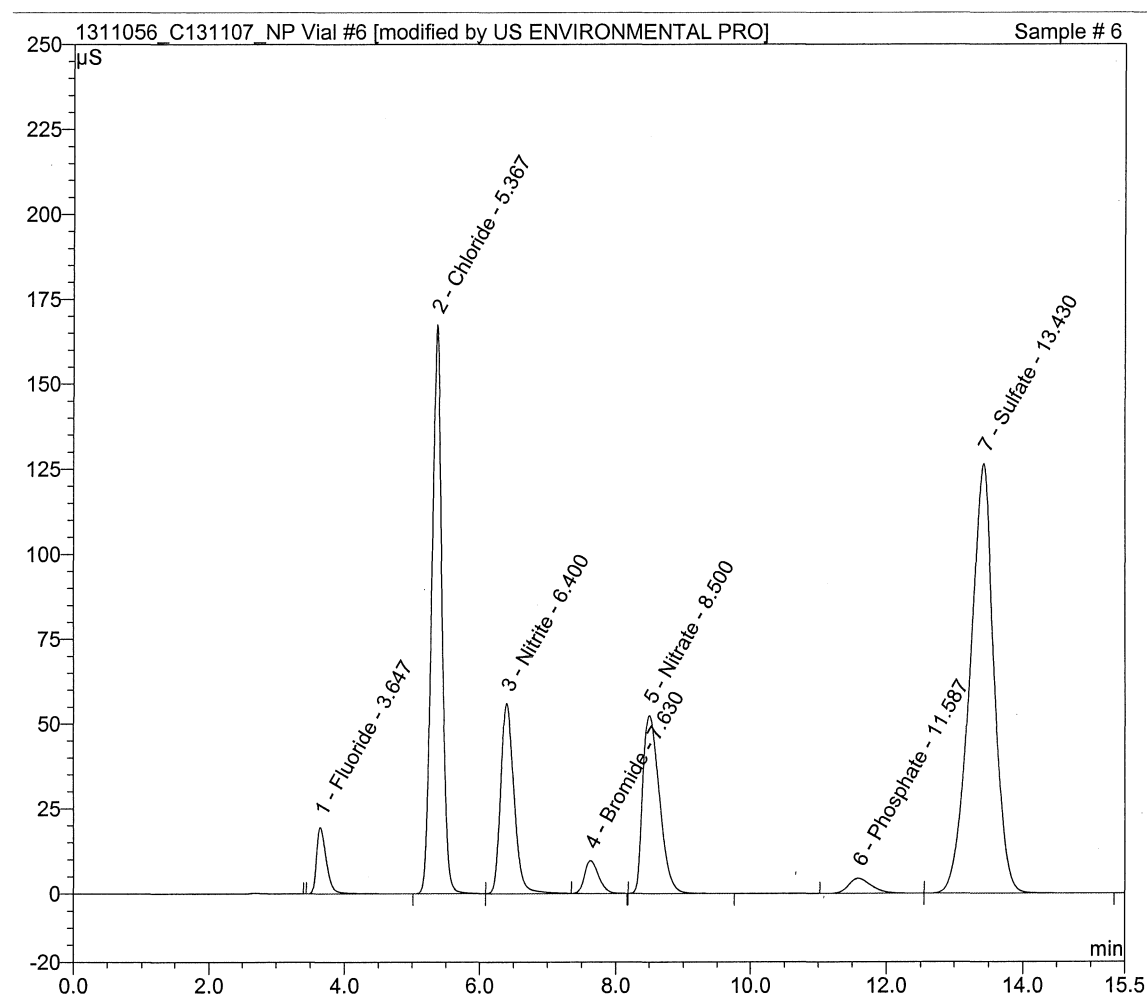
Sample Name:	Std 4	Inj. Vol.:	25.0
Sample Type:	standard	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	5
Inj. Date/Time:	11.19.13 17:59	Run Number:	5

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height $\mu\text{S}$	Amount mg/L
1	3.66	Fluoride	Ru	1.235	7.307	4.0086
2	5.35	Chloride	BM	10.343	60.460	40.2176
3	6.41	Nitrite	M	4.995	22.084	10.0396
4	7.67	Bromide	Rd	0.866	3.511	10.0186
5	8.57	Nitrate	MB	5.218	18.721	10.0263
6	11.62	Phosphate	BM	0.644	1.607	4.0125
7	13.32	Sulfate	MB	18.190	47.749	100.4732



Sample Name:	Std 5	Inj. Vol.:	25.0
Sample Type:	standard	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	6
Inj. Date/Time:	11.19.13 18:17	Run Number:	6

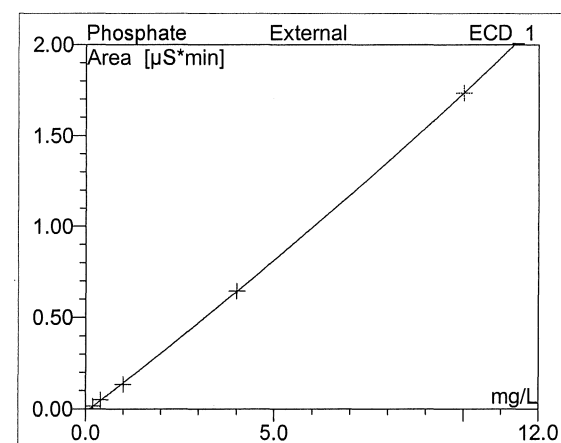
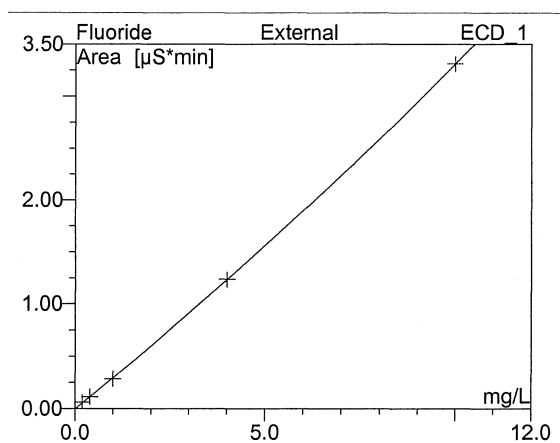
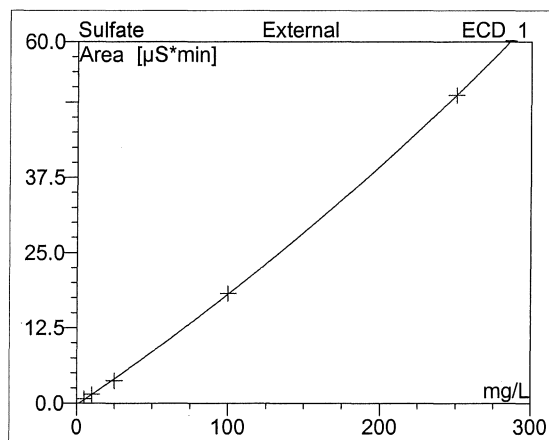
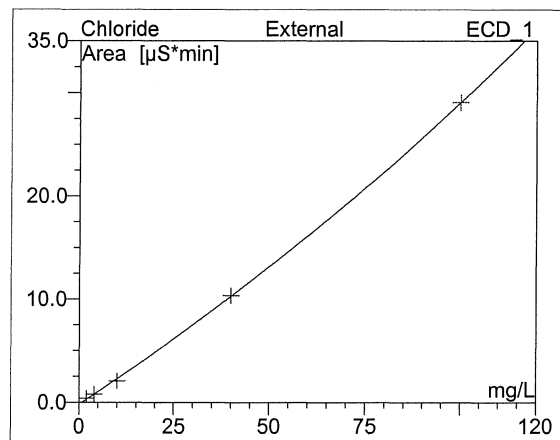
No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height $\mu\text{S}$	Amount mg/L
1	3.65	Fluoride	Ru	3.311	19.449	9.9990
2	5.37	Chloride	BM	29.054	167.321	99.9770
3	6.40	Nitrite	M	12.883	55.999	24.9952
4	7.63	Bromide	Rd	2.299	9.560	24.9979
5	8.50	Nitrate	MB	14.987	52.275	24.9973
6	11.59	Phosphate	BM	1.734	4.432	9.9986
7	13.43	Sulfate	MB	51.133	126.348	249.9500



## Calibration Batch Report

Sequence: 1311056\_C131107\_NP  
 Program: Program Anions Right  
 Ini. Date/Time: 11/19/13 18:17

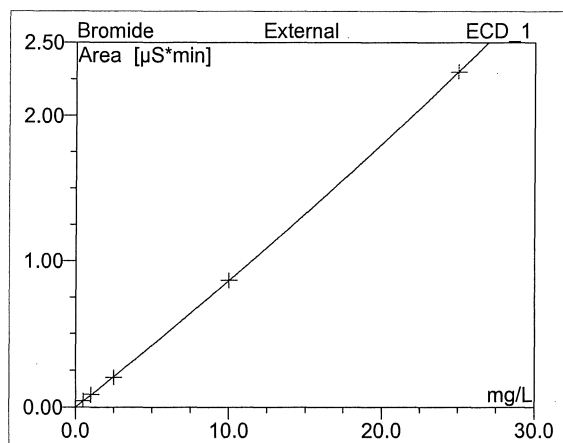
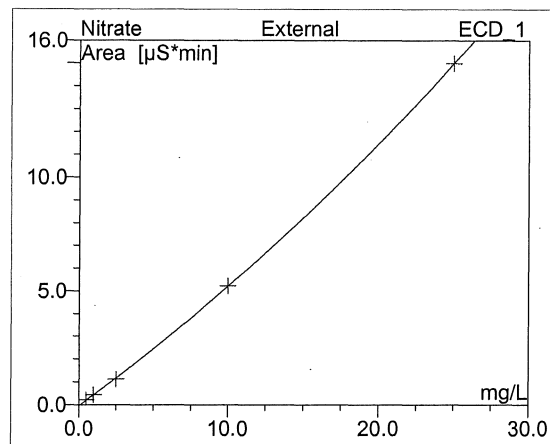
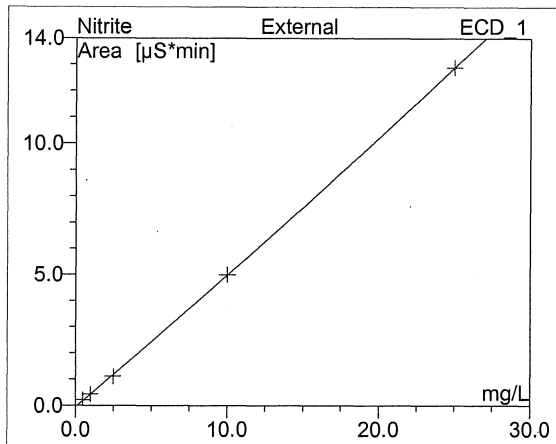
Inj. Vol.: 25.0  
 Operator: ESAT  
 Run Time: 15.50



No.	Ret. Time min	Peak Name	Cal. Type	Points	Offset (C0)	Slope (C1)	Curve (C2)	Coeff. Det. %
1	3.65	Fluoride	QOff	5	-0.006	0.295	0.004	99.9984
2	5.37	Chloride	QOff	5	-0.211	0.242	0.001	99.9899
3	6.40	Nitrite	QOff	5	-0.070	0.495	0.001	99.9943
4	7.63	Bromide	QOff	5	-0.001	0.083	0.000	99.9986
5	8.50	Nitrate	QOff	5	-0.047	0.474	0.005	99.9977
6	11.59	Phosphate	QOff	5	-0.018	0.158	0.002	99.9959
7	13.43	Sulfate	QOff	5	-0.315	0.170	0.000	99.9923
AVERAGE:					-0.0954	0.2739	0.0018	99.9953

Sequence: 1311056\_C131107\_NP  
 Program: Program Anions Right  
 Inj. Date/Time: 11/19/13 18:17

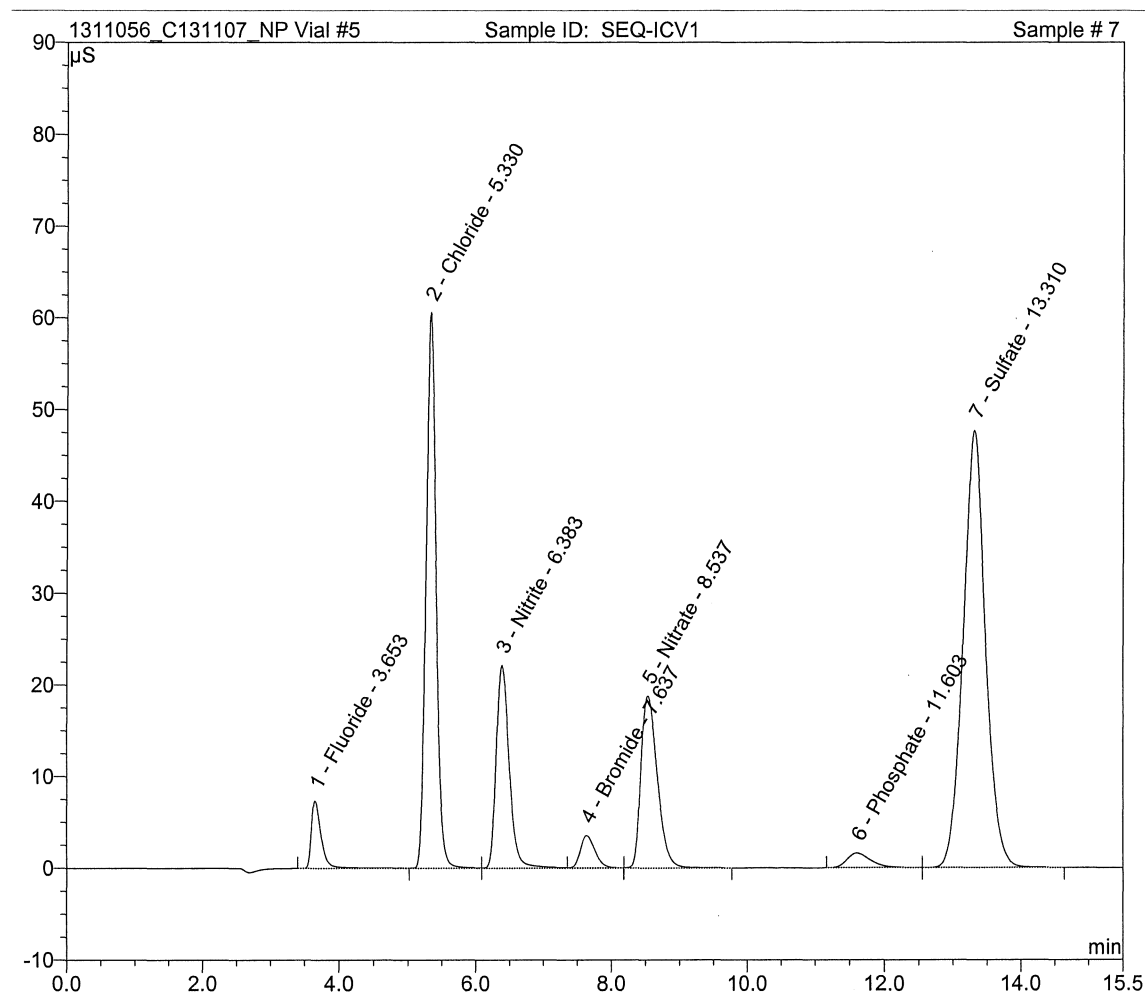
Inj. Vol.: 25.0  
 Operator: n.a.  
 Run Time: 15.50



No.	Ret. Time min	Peak Name	Cal. Type	Points	Offset (C0)	Slope (C1)	Curve (C2)	Coeff. Det. %
1	3.65	Fluoride	QOff	5	-0.006	0.295	0.004	99.9984
2	5.37	Chloride	QOff	5	-0.211	0.242	0.001	99.9899
3	6.40	Nitrite	QOff	5	-0.070	0.495	0.001	99.9943
4	7.63	Bromide	QOff	5	-0.001	0.083	0.000	99.9986
5	8.50	Nitrate	QOff	5	-0.047	0.474	0.005	99.9977
6	11.59	Phosphate	QOff	5	-0.018	0.158	0.002	99.9959
7	13.43	Sulfate	QOff	5	-0.315	0.170	0.000	99.9923
AVERAGE:					-0.0954	0.2739	0.0018	99.9953

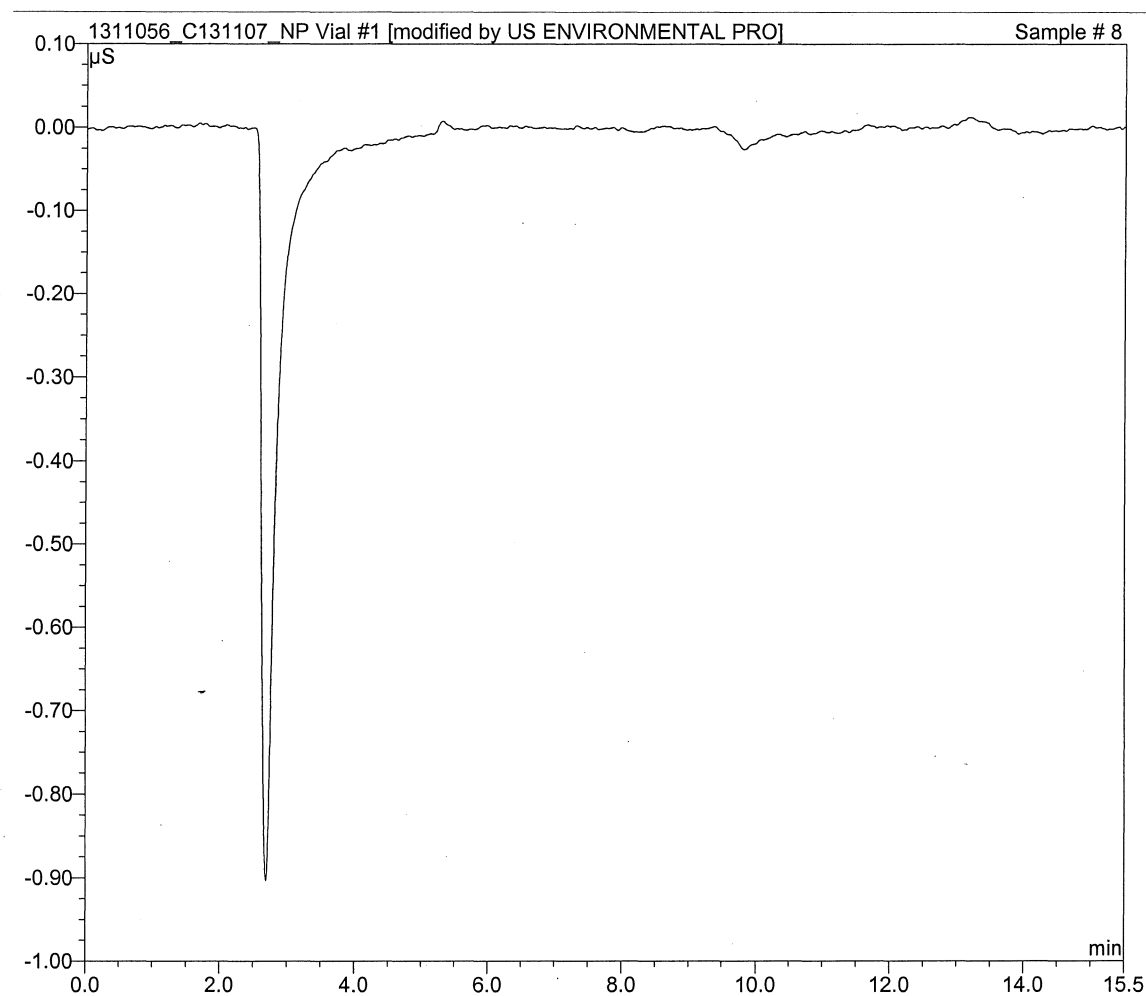
Sample Name:	SEQ-ICV1	Inj. Vol.:	25.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	5
Inj. Date/Time:	11.19.13 18:35	Run Number:	7

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height $\mu\text{S}$	Amount mg/L
1	3.65	Fluoride	Ru	1.234	7.322	4.0041
2	5.33	Chloride	BM	10.371	60.571	40.3146
3	6.38	Nitrite	M	4.978	22.110	10.0081
4	7.64	Bromide	Rd	0.868	3.516	10.0418
5	8.54	Nitrate	MB	5.231	18.746	10.0481
6	11.60	Phosphate	BM	0.639	1.597	3.9806
7	13.31	Sulfate	MB	18.225	47.597	100.6494



Sample Name:	SEQ-ICB1	Inj. Vol.:	25.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	1
Inj. Date/Time:	11.19.13 18:53	Run Number:	8

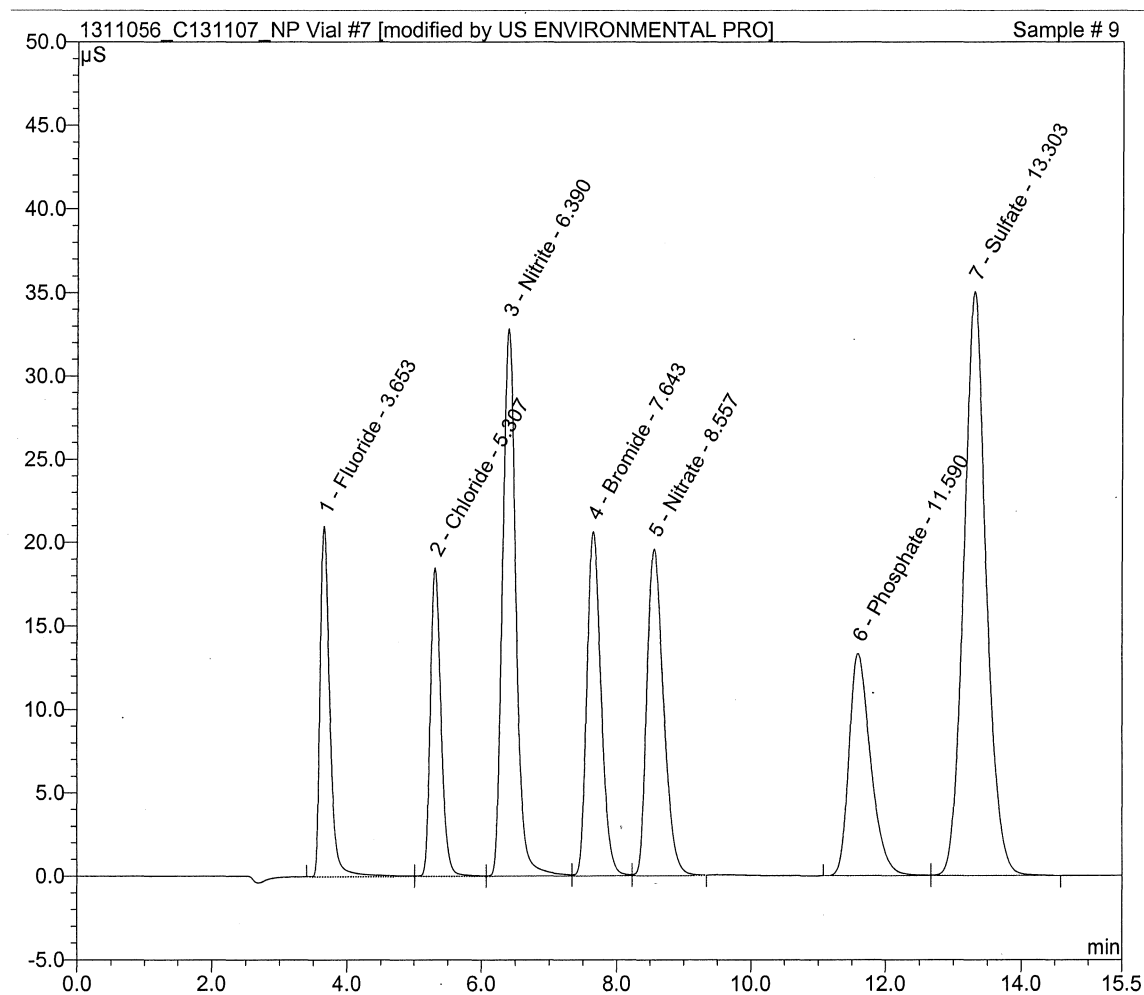
No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height $\mu\text{S}$	Amount mg/L
-----	-------------	-----------	------	--------------------------------------	-------------------------	----------------





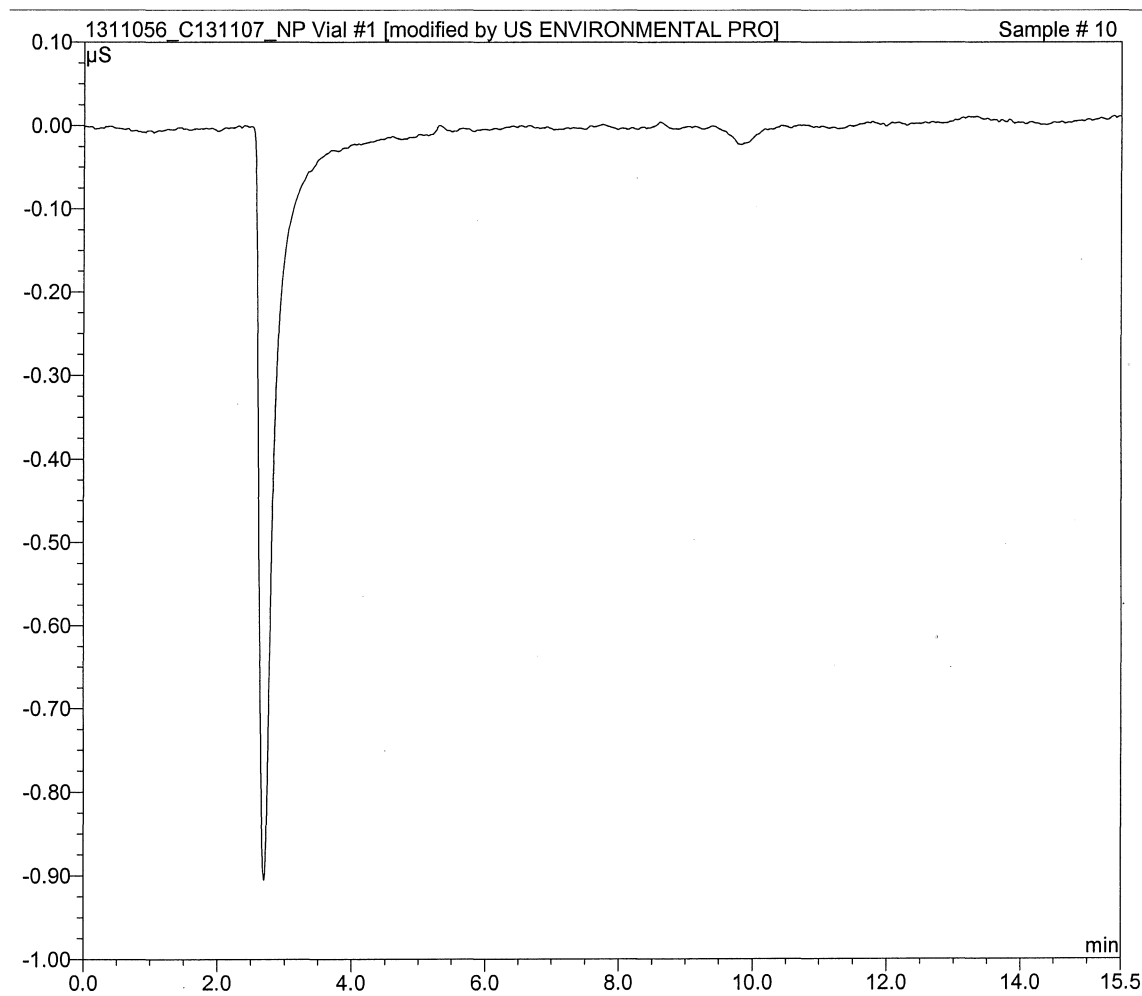
Sample Name:	SEQ-SCV1	Inj. Vol.:	25.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	7
Inj. Date/Time:	11.19.13 19:12	Run Number:	9

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height $\mu\text{S}$	Amount mg/L
1	3.65	Fluoride	BM *	3.437	20.994	10.3395
2	5.31	Chloride	M *	3.375	18.477	14.3807
3	6.39	Nitrite	M *	7.528	32.816	14.9289
4	7.64	Bromide	M *	5.047	20.625	49.9602
5	8.56	Nitrate	MB*	5.632	19.561	10.7400
6	11.59	Phosphate	BM	5.032	13.327	25.1293
7	13.30	Sulfate	MB	13.355	35.016	75.6987



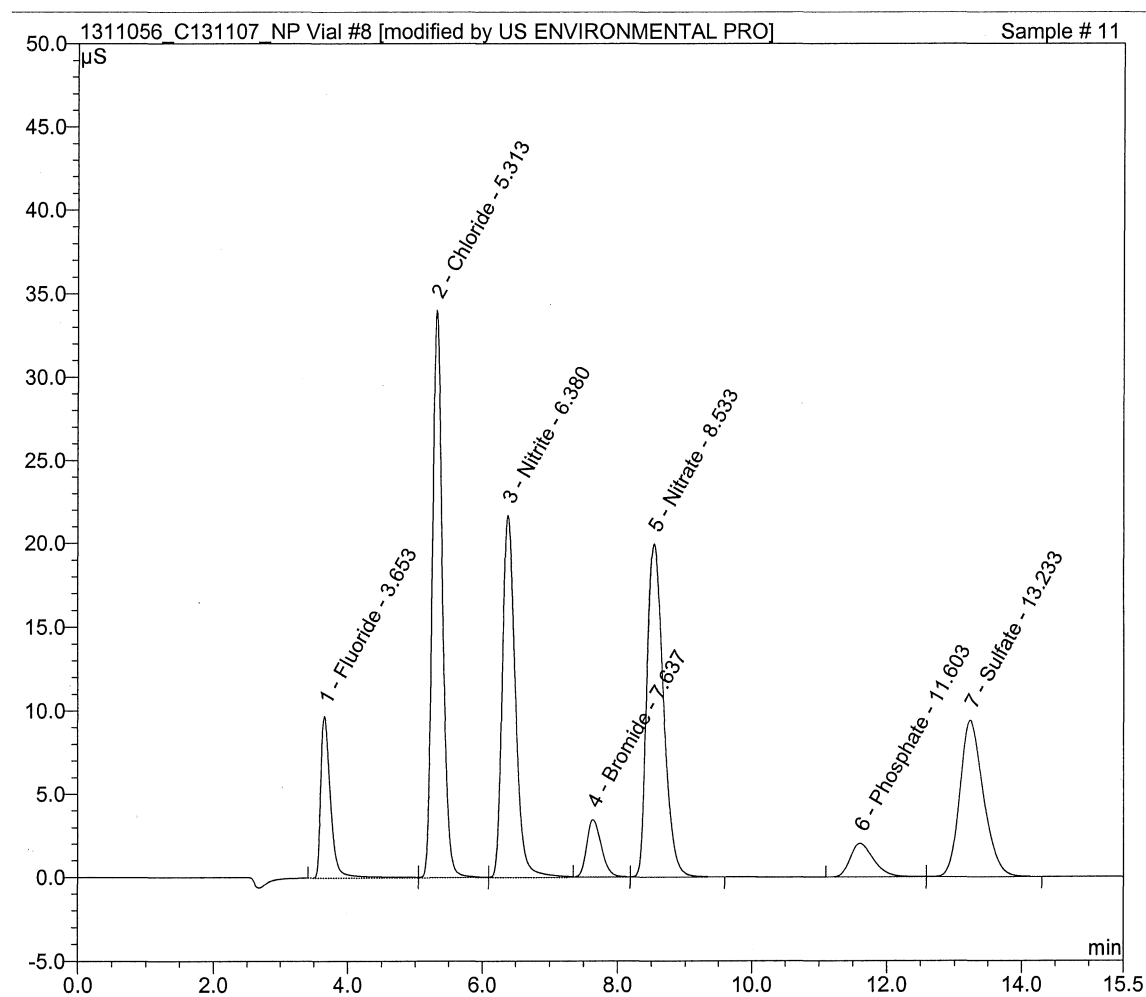
Sample Name:	SEQ-IBL1	Inj. Vol.:	25.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	1
Inj. Date/Time:	11.19.13 19:30	Run Number:	10

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height $\mu\text{S}$	Amount mg/L
-----	-------------	-----------	------	--------------------------------------	-------------------------	----------------



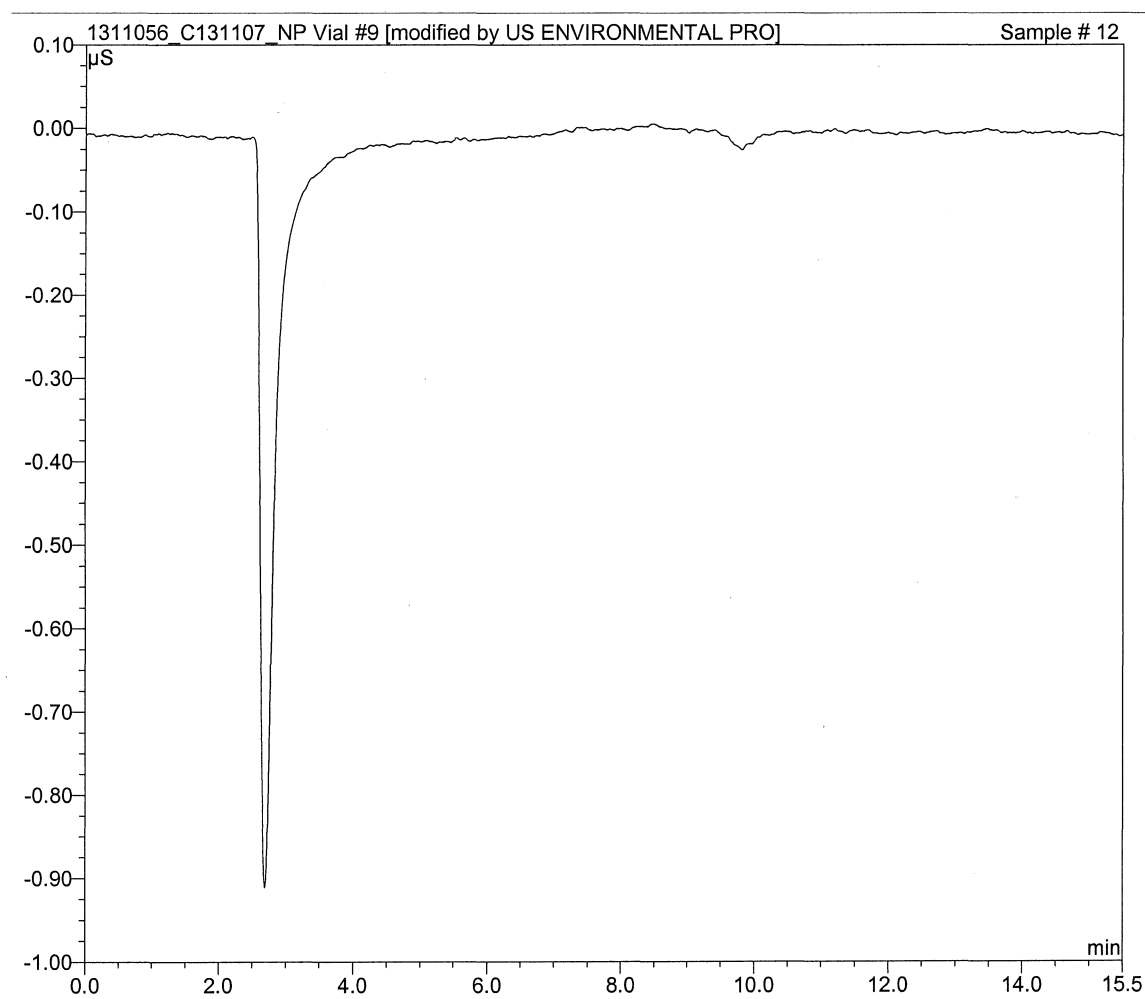
Sample Name:	1311056-BS1	Inj. Vol.:	25.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	8
Inj. Date/Time:	11.19.13 19:48	Run Number:	11

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height $\mu\text{S}$	Amount mg/L
1	3.65	Fluoride	BM *	1.642	9.715	5.2445
2	5.31	Chloride	M *	5.996	34.025	24.3970
3	6.38	Nitrite	M *	4.933	21.688	9.9197
4	7.64	Bromide	Rd	0.855	3.416	9.8967
5	8.53	Nitrate	MB*	5.635	19.949	10.7456
6	11.60	Phosphate	BM	0.813	2.022	4.9824
7	13.23	Sulfate	MB	3.831	9.397	23.9528



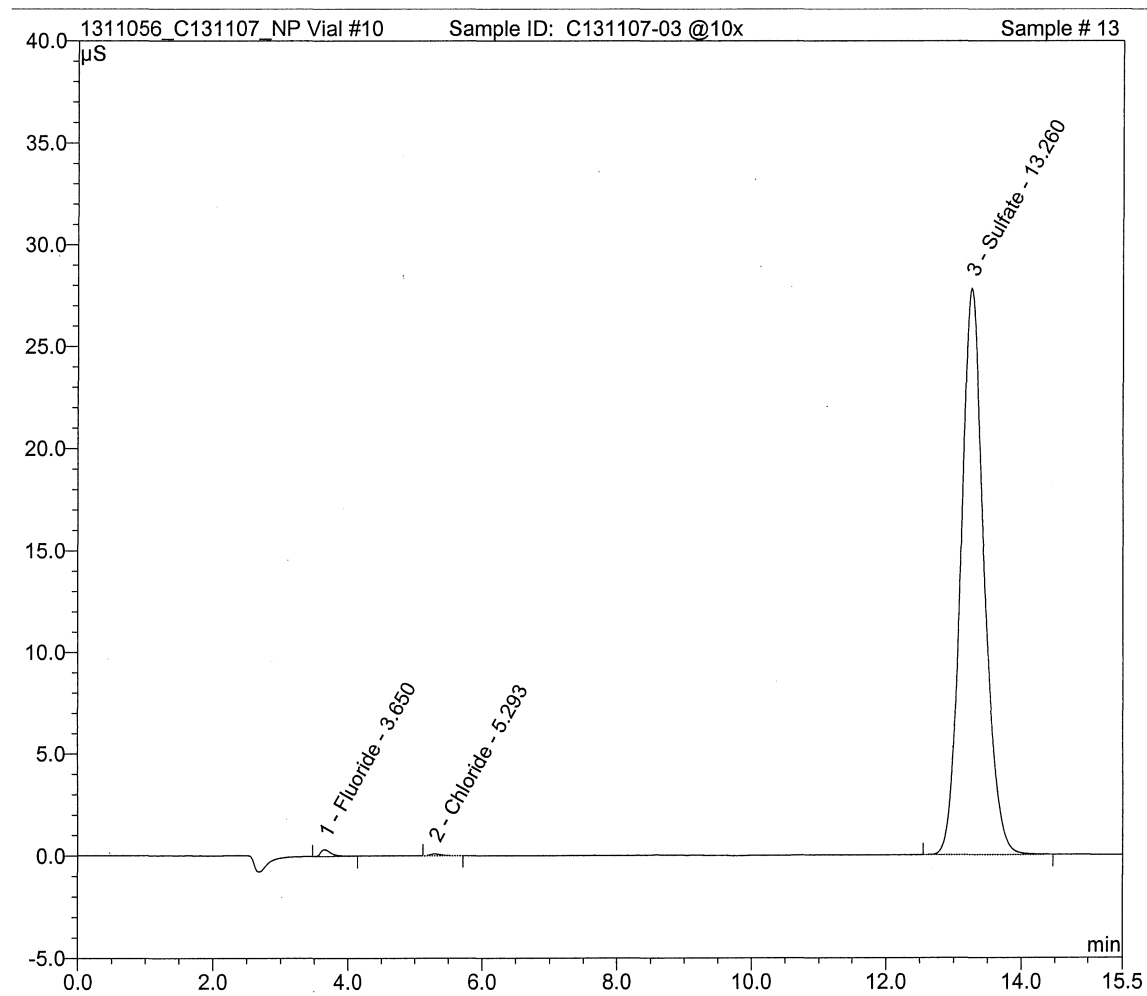
Sample Name:	1311056-BLK1	Inj. Vol.:	25.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	9
Inj. Date/Time:	11.19.13 20:06	Run Number:	12

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height $\mu\text{S}$	Amount mg/L
-----	-------------	-----------	------	--------------------------------------	-------------------------	----------------



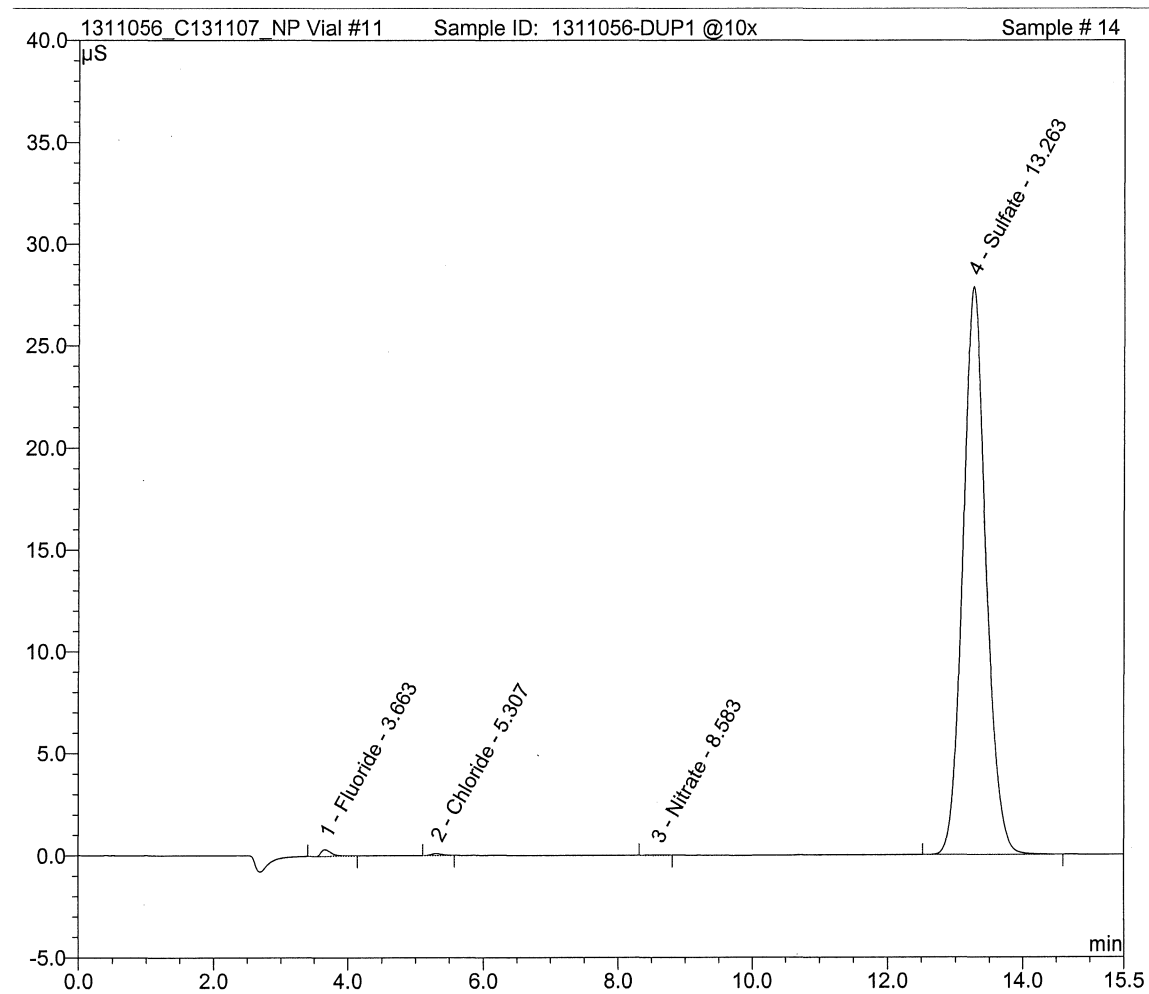
Sample Name:	C131107-03 @10x	Inj. Vol.:	25.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	10
Inj. Date/Time:	11.19.13 20:24	Run Number:	13

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height $\mu\text{S}$	Amount mg/L
1	3.65	Fluoride	BMB	0.057	0.326	0.2155
2	5.29	Chloride	BMB	0.017	0.089	0.9405
3	13.26	Sulfate	BMB	10.965	27.812	63.1021



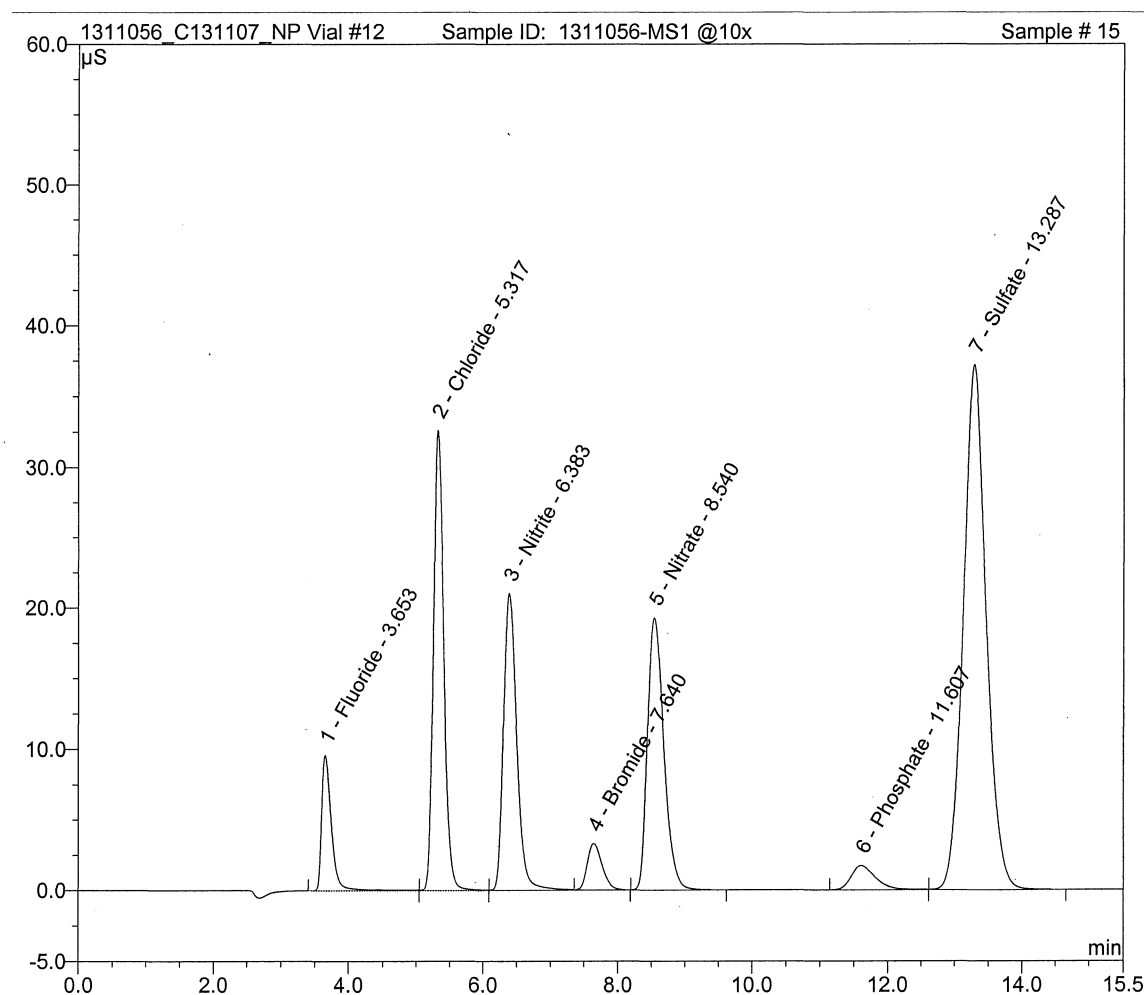
Sample Name:	1311056-DUP1 @10x	Inj. Vol.:	25.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	11
Inj. Date/Time:	11.19.13 20:42	Run Number:	14

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height $\mu\text{S}$	Amount mg/L
1	3.66	Fluoride	BMB	0.059	0.330	0.2200
2	5.31	Chloride	BMB	0.017	0.090	0.9389
3	8.58	Nitrate	BMB	0.004	0.015	0.1069
4	13.26	Sulfate	BMB	10.998	27.853	63.2757



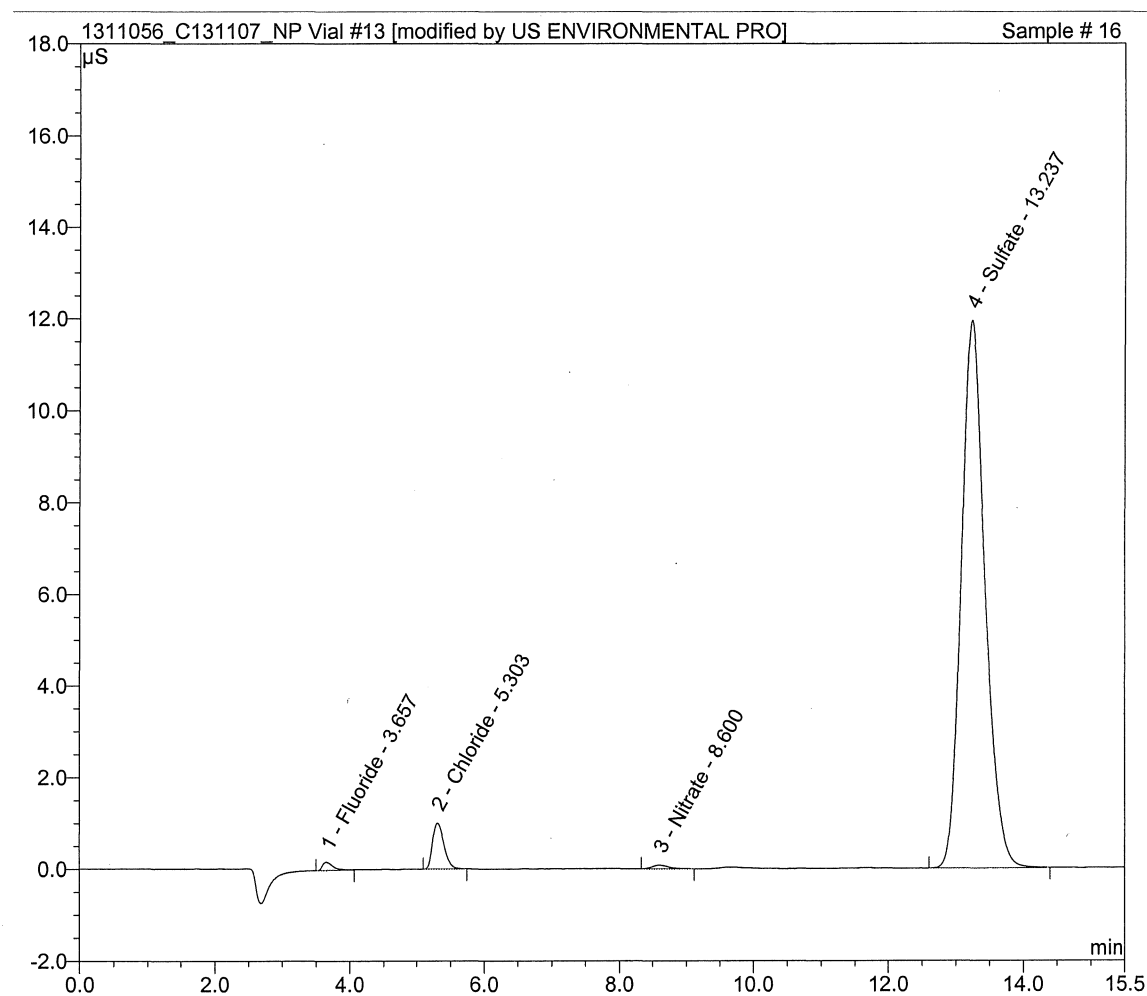
Sample Name:	1311056-MS1 @10x	Inj. Vol.:	25.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	12
Inj. Date/Time:	11.19.13 21:00	Run Number:	15

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height $\mu\text{S}$	Amount mg/L
1	3.65	Fluoride	BM	1.629	9.576	5.2069
2	5.32	Chloride	M	5.794	32.598	23.6406
3	6.38	Nitrite	M	4.813	21.013	9.6852
4	7.64	Bromide	Rd	0.827	3.278	9.5840
5	8.54	Nitrate	MB	5.472	19.255	10.4652
6	11.61	Phosphate	BM	0.723	1.725	4.4653
7	13.29	Sulfate	MB	14.520	37.167	81.7537



Sample Name:	C131107-06	Inj. Vol.:	25.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	13
Inj. Date/Time:	11.19.13 21:18	Run Number:	16

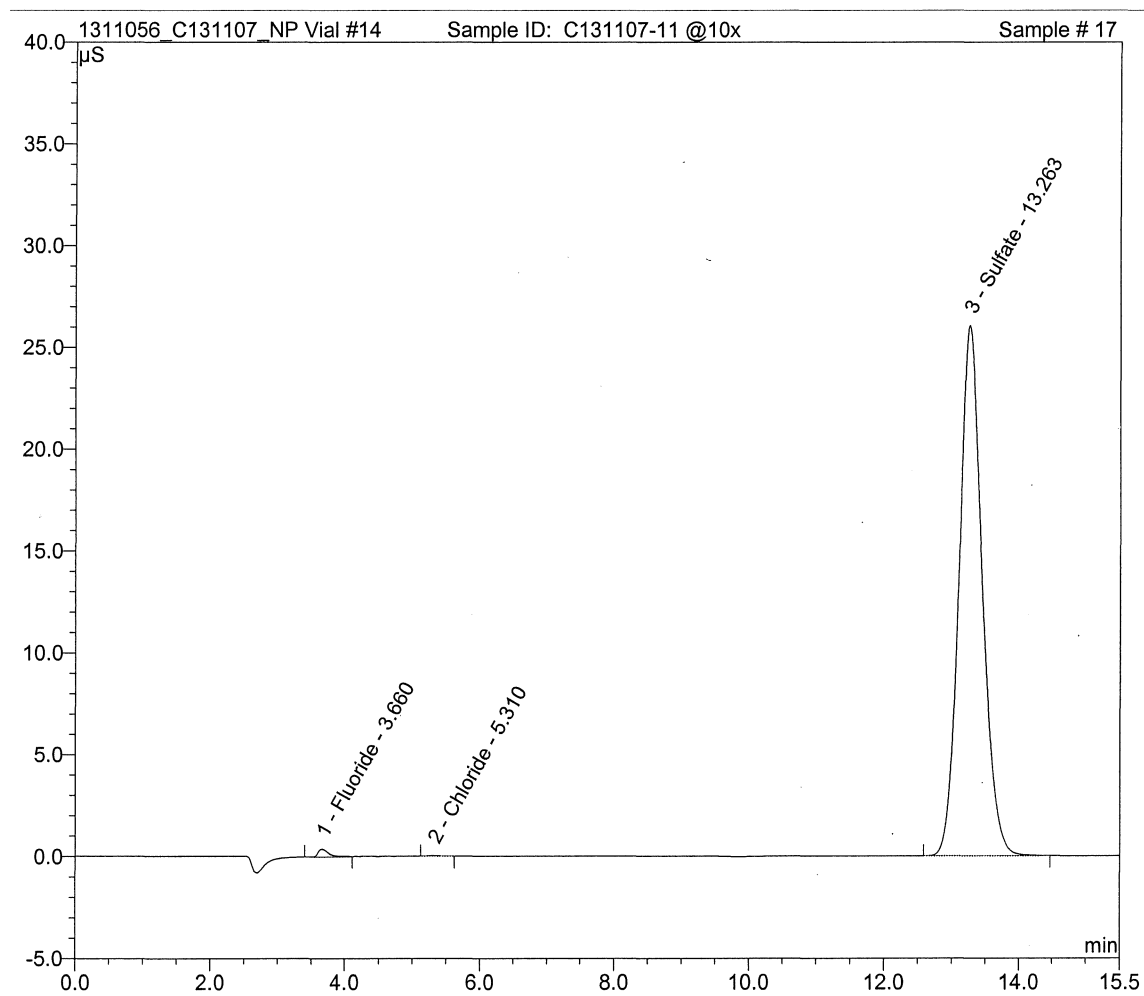
No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height $\mu\text{S}$	Amount mg/L
1	3.66	Fluoride	BMB	0.032	0.181	0.1294
2	5.30	Chloride	BMB	0.194	1.002	1.6668
3	8.60	Nitrate	BMB	0.023	0.081	0.1481
4	13.24	Sulfate	BMB	4.860	11.935	29.7524





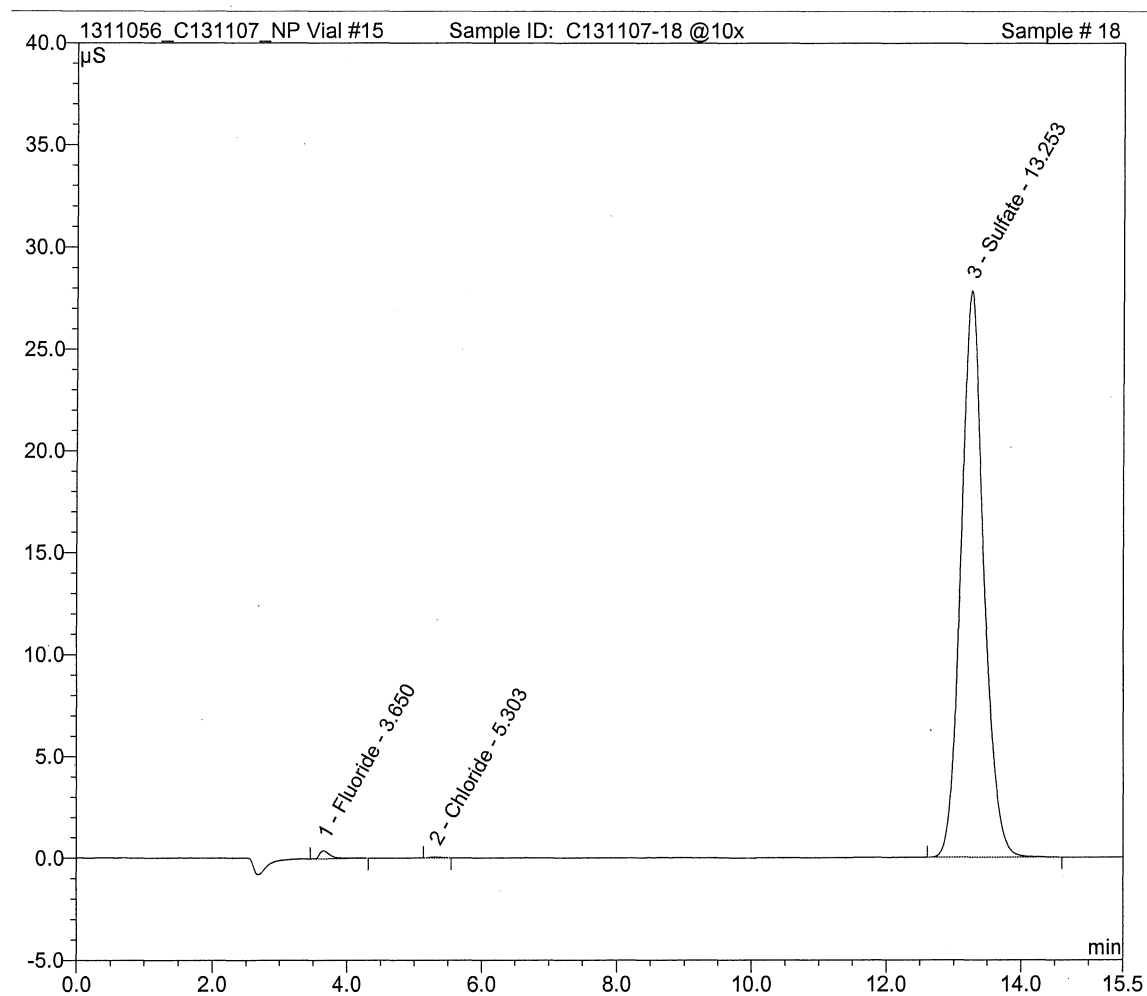
Sample Name:	C131107-11 @10x	Inj. Vol.:	25.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	14
Inj. Date/Time:	11.19.13 21:36	Run Number:	17

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height $\mu\text{S}$	Amount mg/L
1	3.66	Fluoride	BMB	0.068	0.380	0.2499
2	5.31	Chloride	BMB	0.007	0.032	0.8961
3	13.26	Sulfate	BMB	10.363	26.040	59.8904



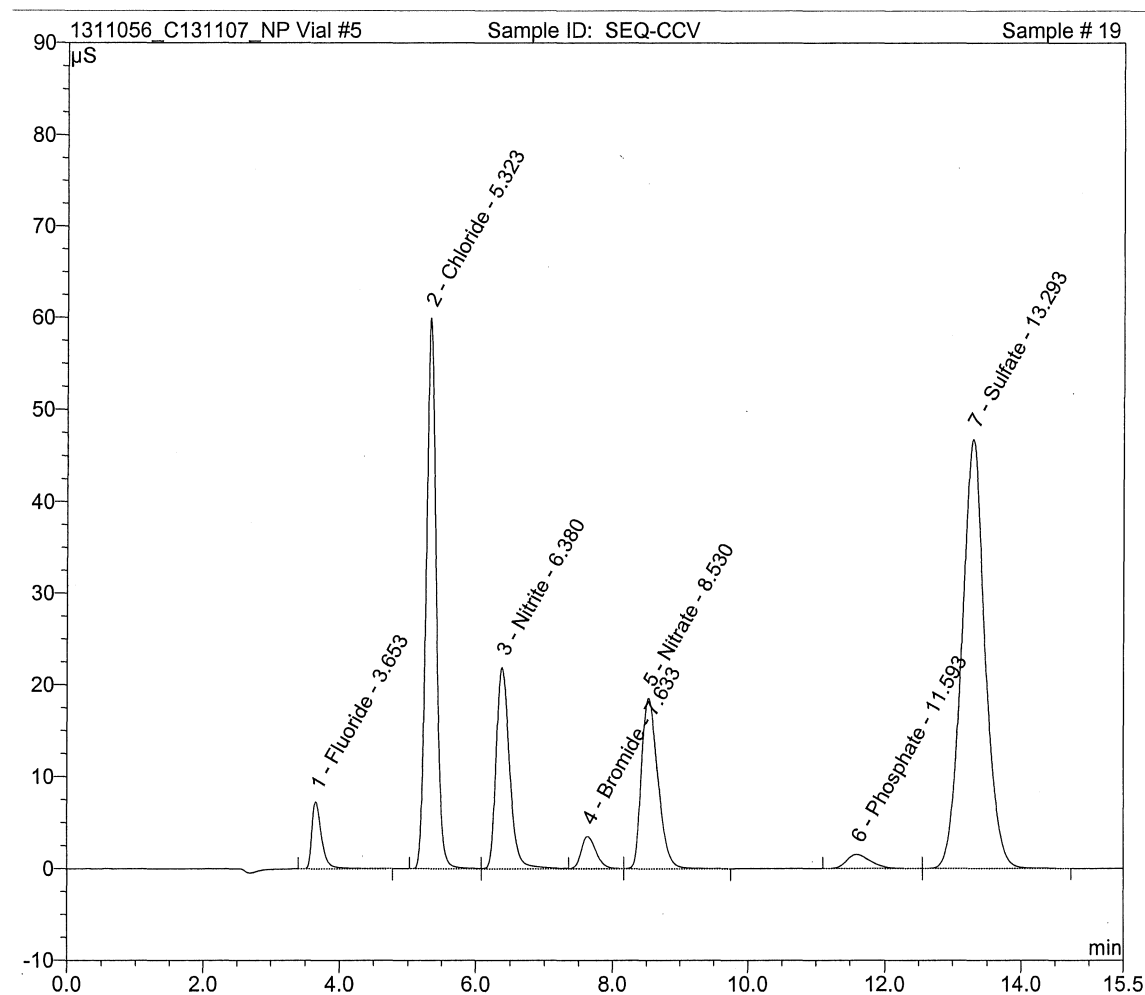
Sample Name:	C131107-18 @10x	Inj. Vol.:	25.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	15
Inj. Date/Time:	11.19.13 21:54	Run Number:	18

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height $\mu\text{S}$	Amount mg/L
1	3.65	Fluoride	BMB	0.072	0.387	0.2632
2	5.30	Chloride	BMB	0.007	0.037	0.8981
3	13.25	Sulfate	BMB	11.052	27.826	63.5656



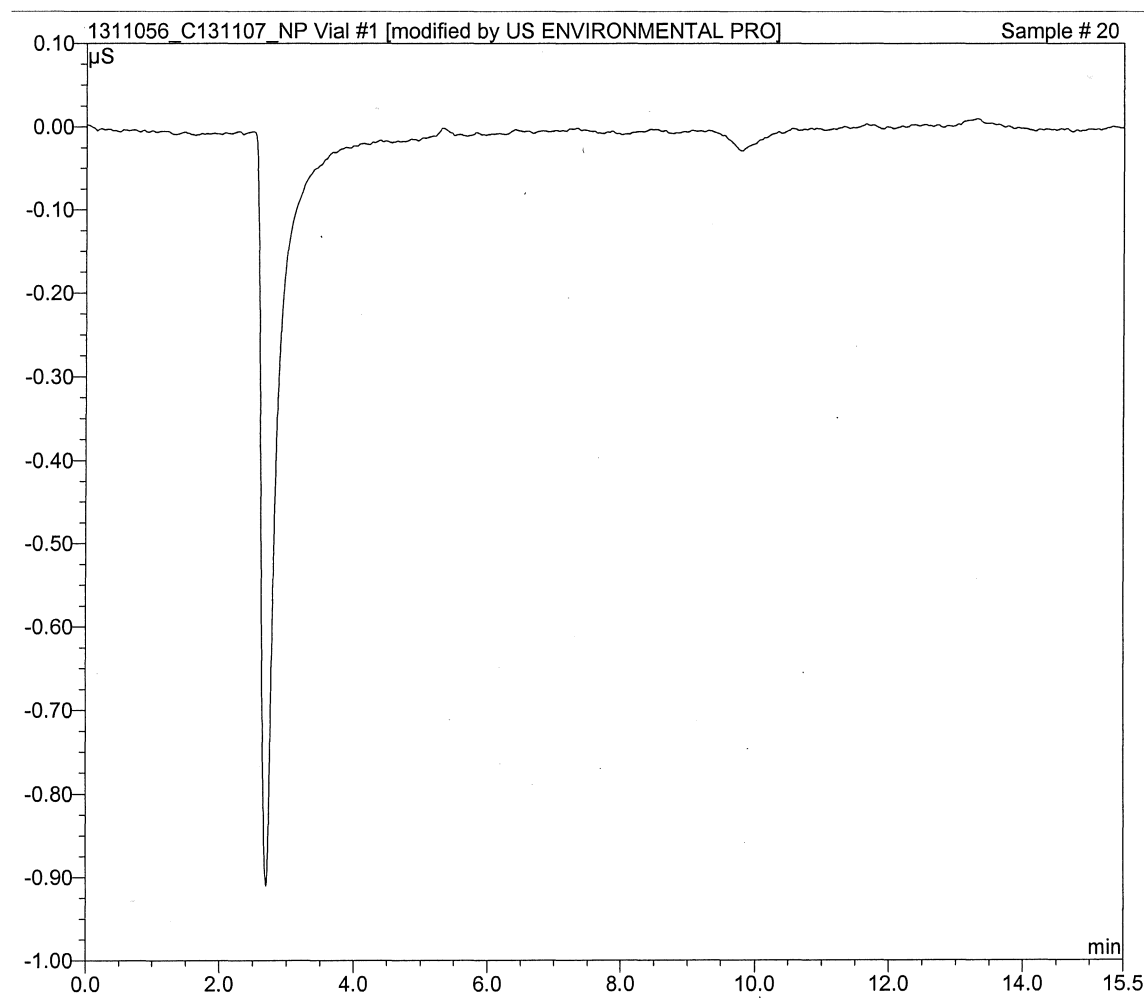
Sample Name:	SEQ-CCV	Inj. Vol.:	25.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	5
Inj. Date/Time:	11.19.13 22:12	Run Number:	19

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height $\mu\text{S}$	Amount mg/L
1	3.65	Fluoride	BMB	1.236	7.262	4.0107
2	5.32	Chloride	BM	10.410	59.877	40.4542
3	6.38	Nitrite	M	4.988	21.838	10.0265
4	7.63	Bromide	Rd	0.873	3.470	10.0924
5	8.53	Nitrate	MB	5.255	18.497	10.0912
6	11.59	Phosphate	BM	0.633	1.545	3.9456
7	13.29	Sulfate	MB	18.325	46.706	101.1529



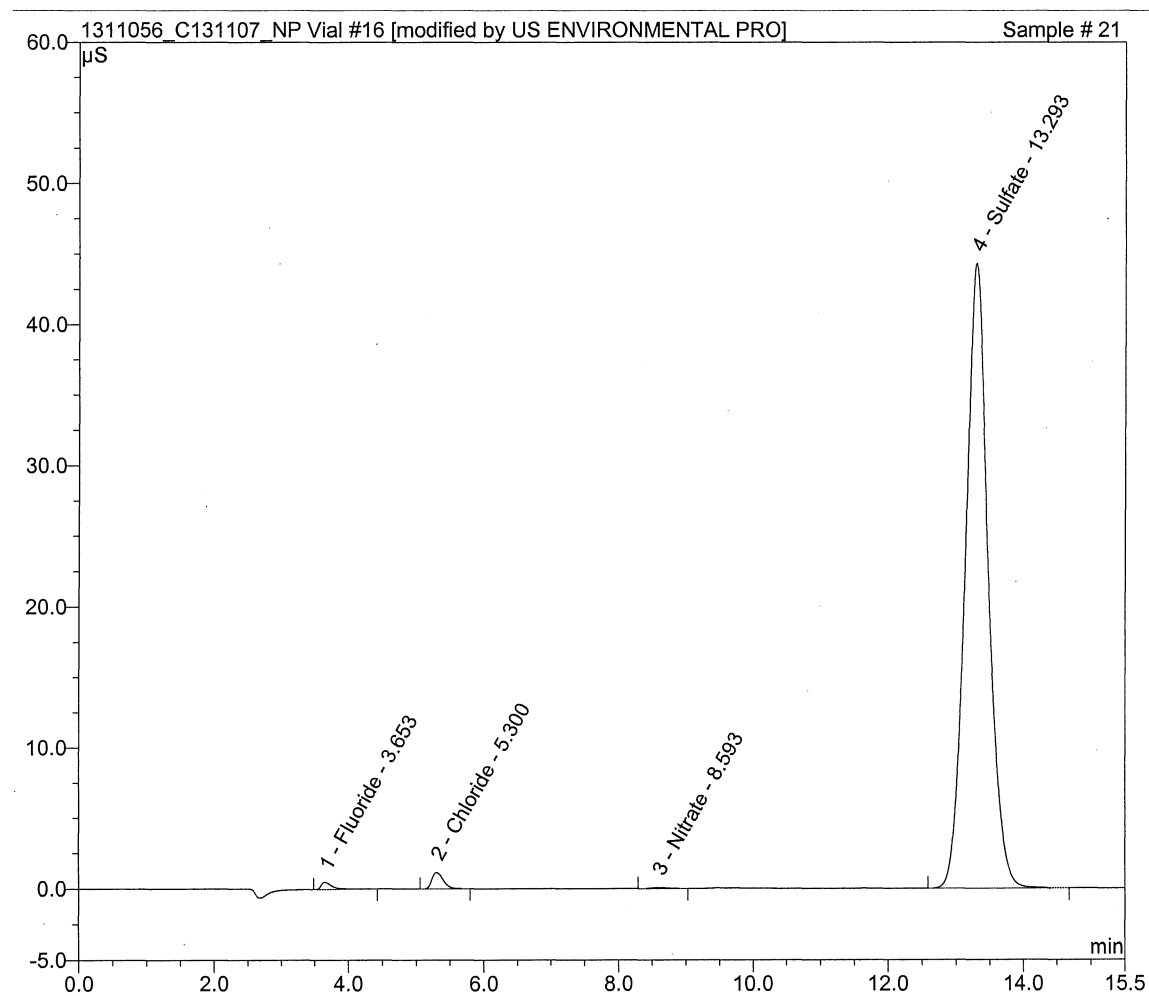
Sample Name:	SEQ-CCB	Inj. Vol.:	25.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	1
Inj. Date/Time:	11.19.13 22:30	Run Number:	20

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height $\mu\text{S}$	Amount mg/L
-----	-------------	-----------	------	--------------------------------------	-------------------------	----------------



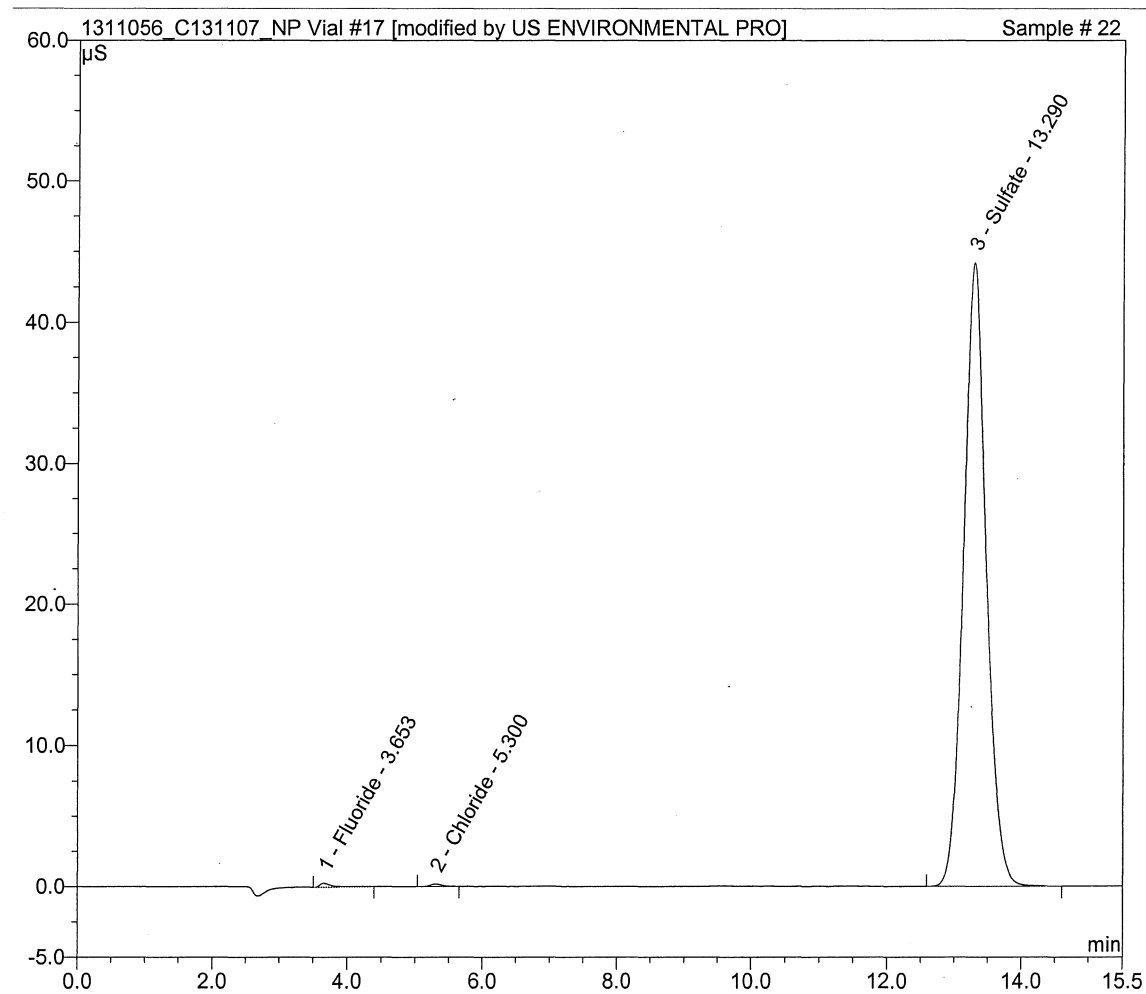
Sample Name:	C131107-21	Inj. Vol.:	25.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	16
Inj. Date/Time:	11.19.13 22:48	Run Number:	21

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height $\mu\text{S}$	Amount mg/L
1	3.65	Fluoride	BMB	0.101	0.519	0.3618
2	5.30	Chloride	BMB	0.227	1.160	1.8022
3	8.59	Nitrate	BMB	0.020	0.067	0.1408
4	13.29	Sulfate	BMB	17.257	44.292	95.7629



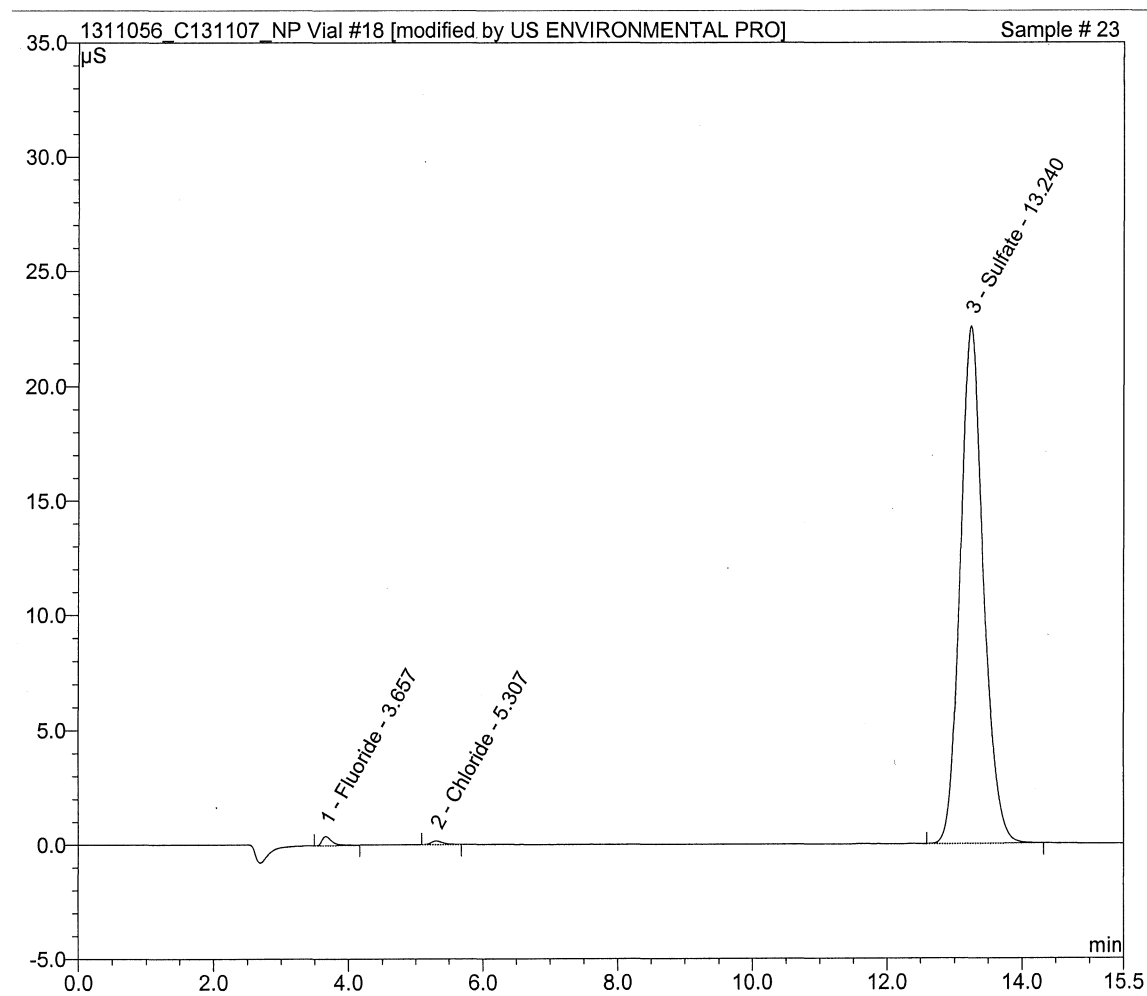
Sample Name:	C131107-24 @10x	Inj. Vol.:	25.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	17
Inj. Date/Time:	11.19.13 23:07	Run Number:	22

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height $\mu\text{S}$	Amount mg/L
1	3.65	Fluoride	BMB	0.059	0.283	0.2208
2	5.30	Chloride	BMB	0.035	0.177	1.0114
3	13.29	Sulfate	BMB	17.254	44.219	95.7498



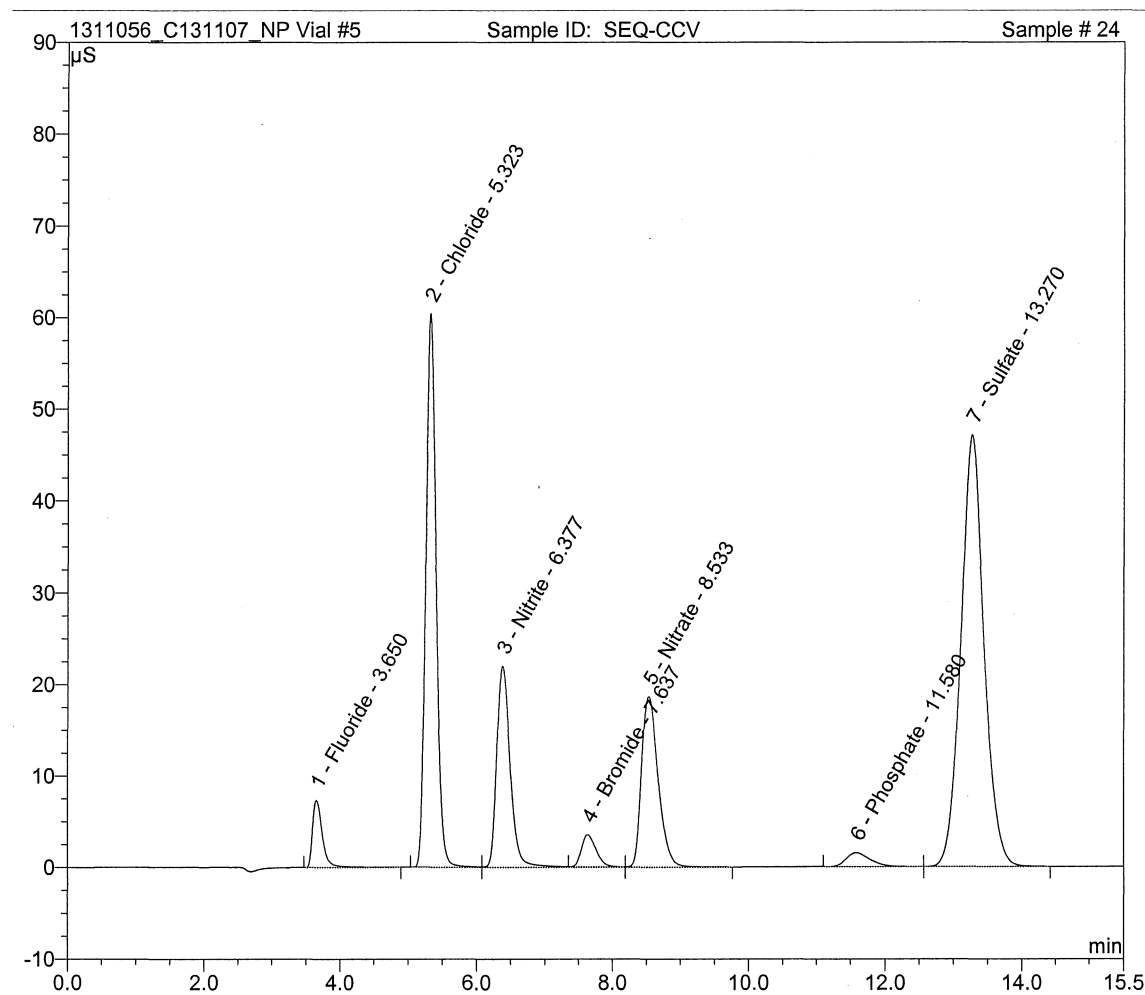
Sample Name:	C131107-27 @10x	Inj. Vol.:	25.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	18
Inj. Date/Time:	11.19.13 23:25	Run Number:	23

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height $\mu\text{S}$	Amount mg/L
1	3.66	Fluoride	BMB	0.071	0.405	0.2621
2	5.31	Chloride	BMB	0.031	0.154	0.9954
3	13.24	Sulfate	BMB*	8.982	22.568	52.4603



Sample Name:	SEQ-CCV	Inj. Vol.:	25.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	5
Inj. Date/Time:	11.19.13 23:43	Run Number:	24

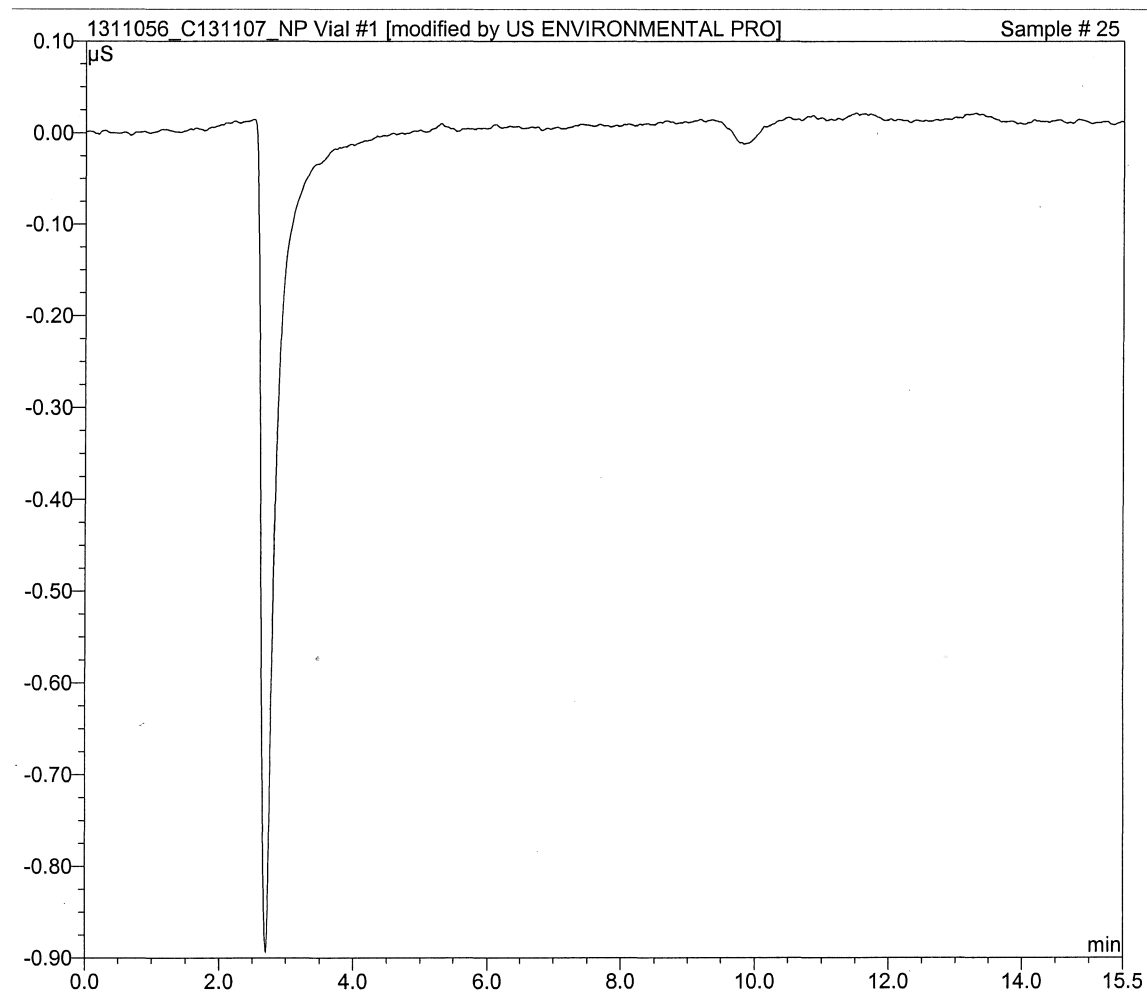
No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height $\mu\text{S}$	Amount mg/L
1	3.65	Fluoride	BMB	1.239	7.309	4.0193
2	5.32	Chloride	BM	10.473	60.390	40.6746
3	6.38	Nitrite	M	5.010	21.963	10.0696
4	7.64	Bromide	Rd	0.877	3.489	10.1418
5	8.53	Nitrate	MB	5.282	18.602	10.1365
6	11.58	Phosphate	BM	0.628	1.541	3.9193
7	13.27	Sulfate	MB	18.419	47.052	101.6267





Sample Name:	SEQ-CCB	Inj. Vol.:	25.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	Program Anions Right	Vial #:	1
Inj. Date/Time:	11.20.13 00:01	Run Number:	25

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height $\mu\text{S}$	Amount mg/L
-----	-------------	-----------	------	--------------------------------------	-------------------------	----------------



Sample Name:	STOP	Inj. Vol.:	25.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	Program Stop	Vial #:	1
Inj. Date/Time:	11.20.13 00:16	Run Number:	26

n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

1311056\_C131107\_NP Vial #1 Sample ID: STOP Sample # 26

Can't open raw data file "C:\Chromel\data\Right\_system\Sequences and Data\2013 ESAT\  
1311056\_C131107\_NP.SEQ\ECD\_1.CHL\15916.acd".  
The system cannot find the file specified.

## PERKIN ELMER OPTIMA 4300DV ICP-OE

Project(s): Pito Argentine Nov 2013 Date: 12 / 10 / 2013  
 Work Order(s): C131107 TDF: A-025 Analyst: S. Van Overmelen

## Batch Preparation Information

## Digest / Prep

TR / Total / Diss

## Matrix

Water / Soil / Other

## Batch ID

1312039 / 1312035

## Data Storage

Data File: X:/Metals Data Files/ A-025-1312039-131210

## Standard Information

Calibration Std. # 1 = Reagent Blank Solution

Calibration Std. # 2 = ESAT High, LIMS: 3020404

ICV: (LIMS ID: 3020406)Prepped: 12/03/13 By: NPPrepped: 11/04/13 By: SVICV: 1:2 of 3020404 (LIMS ID: 3020405)Prepped: 12/10/13 By: SV

CRQL Stock: (LIMS ID: 3020410)

Prepped: 2-04-2013 By: SV

CRQL Daily (LIMS ID: 3020411)

Prepped: 12/10/13 By: SV

ICSA: 3020408 Prepped: 2-04-2013

ICSAB: 3020409 Prepped: 2-04-2013

## Spike Information

## Dissolved Spikes

## Tot. / Tot. Rec. Spikes

Sample ID: C131107-04Sample ID: C131107-02, -05Sample ID: C131107-07Sample Vol: 50 mLSample vol: 10 mLQCS-3: 100 uLWW-LFS1: 500 uL

Exp: 2-1-2014 (LIMS ID: 3020134)

Exp: 2-1-2014 (LIMS ID: 3020135)

Salt Spike: 100 uLWW-LFS2: 500 uL

Prepped 2-04-2013 (LIMS ID: 3020401)

Exp: 2-1-2014 (LIMS ID: 3020136)

## Comments / Maintenance

Replace Nebulizer?

Y / N

New pump tubing?

Y / N

Replace torch or injector?

Y / N

## Analytes Reported:

Ag, Al, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, K, MgMn, Mo, Na, Ni, Pb, Sb, Se, SiO<sub>2</sub>, Sr, Ti, Tl, V, Zn

Sequence ID:

1312045 / 1312046

Lims Entry (Date / Init):

12/11/13 SV

## ESAT Region 8

## ICP-OE Data Review Form

## Analyst / Bench Review – Level I

LIMS: C131107

TDF: A-025

Matrix: water

Analysis: Dissolved / Total Recoverable metals

## Method / Instrument QC Parameters

## Analytical Batch / Sample Parameters

☒ Yes  
☐ No ICV 95-105%

☒ Yes  
☐ No ICB  $\leq \pm$  PQL

☒ Yes  
☐ No ICSA Spiked Analytes 80% - 120%

☒ Yes  
☐ No ICSA Non-Spiked Analytes  $\leq \pm$  PQL

☒ Yes  
☐ No ICSAB Spiked Analytes 80-120%

☒ Yes  
☐ No CCBs  $\leq \pm$  PQL

☒ Yes  
☐ No SCV 90-110%

☒ Yes  
☐ No CRDL 70-130%

☒ Yes  
☐ No CCVs 90-110%

☒ Yes  
☐ No Mth. Blk. (MB) / Prep. BLK (PB)  $\leq \pm$  PQL

☒ Yes  
☐ No Blk. Spike (BS) 85-115% / SRM In Control

☒ Yes  
☐ No Laboratory Duplicate Analyzed

☒ Yes  
☐ No MS Analyzed Every 10% of Samples 70-130%

☒ Yes  
☐ No Serial Dilution Analyzed

☒ Yes  
☐ No Internal Standards 80-120%

Other data quality issues identified ☐ Yes ☒ No

Describe any anomaly or deficiency not indicated above in the space provided

## LIMS Electronic Data Transfer

☒ Yes  
☐ No The instrument data file is uploaded to the X: drive

☒ Yes  
☐ No All samples and QC data are present in LIMS

Analyst: *[Signature]*

☒ Yes  
☐ No Instrument data are uploaded into the LIMS

☒ Yes  
☐ No The analyte list for the sequence is complete

Date: 12/11/13

## Peer Review of Analytical Analysis – Level II

## Method / Instrument QC Parameters

## Analytical Batch / Sample Parameters

☒ Yes  
☐ No ICV 95-105%

☒ Yes  
☐ No ICB  $\leq \pm$  PQL

☒ Yes  
☐ No ICSA Spiked Analytes 80-120%

☒ Yes  
☐ No ICSA Non-Spiked Analytes  $\leq \pm$  PQL

☒ Yes  
☐ No ICSAB Spiked Analytes 80-120%

☒ Yes  
☐ No CCBs  $\leq \pm$  PQL

☒ Yes  
☐ No SCV 90-110%

☒ Yes  
☐ No CRDL 70-130%

☒ Yes  
☐ No CCVs 90-110%

☒ Yes  
☐ No Mth. Blk. (MB) / Prep. BLK (PB)  $\leq \pm$  PQL

☒ Yes  
☐ No Blk. Spike (BS) 85-115% / SRM In Control

☒ Yes  
☐ No Laboratory Duplicate Analyzed

☒ Yes  
☐ No MS Analyzed Every 10% of Samples 70-130%

☒ Yes  
☐ No Serial Dilution Analyzed

☒ Yes  
☐ No Internal Standards 80-120%

Other data quality issues identified ☐ Yes ☒ No

Describe any anomaly or deficiency not indicated above in the space provided

## LIMS Electronic Data Transfer

☒ Yes  
☐ No The instrument data file is uploaded to the X: drive

☒ Yes  
☐ No All samples and QC data are present in LIMS

Peer Reviewer: *[Signature]*

☒ Yes  
☐ No Instrument data are uploaded into the LIMS

☒ Yes  
☐ No The analyte list for the sequence is complete

Date: 12/11/2013

# PREPARATION BENCH SHEET

1312039

TechLaw, Inc. - ESAT Region 8

Printed: 12/9/2013 1:26:02PM

Matrix: Water

Date Prepared: 12/09/13 13:24 By: SV

Prepared using: METALS - No Lab Prep Req'd

Lab Number	Analysis	EPA Tag ID	Initial (mL)	Final (mL)	Spike1 ID	ul Spike1	Spike2 ID	ul Spike2	Source ID	QC Code	Extraction Comments
C131107-01 A	DM-Hardness - Calculated	8-A	50	50						CHV-101U	
C131107-04 A	DM-Hardness - Calculated	8-A	50	50						DR-1	
C131107-07 A	DM-Hardness - Calculated	8-A	50	50						DR-2	
C131107-09 A	DM-Hardness - Calculated	8-A	50	50						DR-3	
C131107-12 A	DM-Hardness - Calculated	8-A	50	50						DR-4	
C131107-14 A	DM-Hardness - Calculated	8-A	50	50						DR-5	
C131107-16 A	DM-Hardness - Calculated	8-A	50	50						DR-6	
C131107-19 A	DM-Hardness - Calculated	8-A	50	50						DR-7	
C131107-22 A	DM-Hardness - Calculated	8-A	50	50						MW-109S	
C131107-25 A	DM-Hardness - Calculated	8-A	50	50						MW-110	
C131107-28 A	DM-Hardness - Calculated	8-A	50	50						MW-2D	
C131107-30 A	DM-Hardness - Calculated	8-A	50	50						MW-3D	
C131107-01 A	ICPOE Diss. Metals	8-A	50	50						CHV-101U	
C131107-04 A	ICPOE Diss. Metals	8-A	50	50						DR-1	
C131107-07 A	ICPOE Diss. Metals	8-A	50	50						DR-2	
C131107-09 A	ICPOE Diss. Metals	8-A	50	50						DR-3	
C131107-12 A	ICPOE Diss. Metals	8-A	50	50						DR-4	
C131107-14 A	ICPOE Diss. Metals	8-A	50	50						DR-5	
C131107-16 A	ICPOE Diss. Metals	8-A	50	50						DR-6	
C131107-19 A	ICPOE Diss. Metals	8-A	50	50						DR-7	
C131107-22 A	ICPOE Diss. Metals	8-A	50	50						MW-109S	
C131107-25 A	ICPOE Diss. Metals	8-A	50	50						MW-110	
C131107-28 A	ICPOE Diss. Metals	8-A	50	50						MW-2D	
C131107-30 A	ICPOE Diss. Metals	8-A	50	50						MW-3D	

Preparation Reviewed By

Date

Page 1 of 2

# PREPARATION BENCH SHEET

1312039

TechLaw, Inc. - ESAT Region 8

Printed: 12/9/2013 1:26:02PM

Matrix: Water

Date Prepared: 12/09/13 13:24 By: SV

Prepared using: METALS - No Lab Prep Req'd

Lab Number	Analysis	EPA Tag ID	Initial (mL)	Final (mL)	Spike1 ID	ul Spike1	Spike2 ID	ul Spike2	Source ID	QC Code	Extraction Comments
1312039-BLK1	QC		50	50						Blank	
1312039-BS1	QC		10	10	3020403	100				LCS	
1312039-DUP1	QC		50	50					C131107-04	Duplicate	
1312039-MS1	QC		10	10	3020403	100			C131107-04	Matrix Spike	
1312039-MS2	QC		10	10	3020403	100			C131107-07	Matrix Spike	

Preparation Reviewed By

Date

# PREPARATION BENCH SHEET

1312035

TechLaw, Inc. - ESAT Region 8

Printed: 12/9/2013 8:14:53AM

Matrix: Water

Date Prepared: 12/09/13 08:09 By: SV

Prepared using: METALS - 200.2 - TR Metals

Lab Number	Analysis	EPA Tag ID	Initial (mL)	Final (mL)	Spike1 ID	ul Spike1	Spike2 ID	ul Spike2	Source ID	QC Code	Extraction Comments
C131107-02 A	ICPMS Tot. Rec. Metals	8-B	50	50						CHV-101U	10x
C131107-05 A	ICPMS Tot. Rec. Metals	8-B	50	50						DR-1	
C131107-08 A	ICPMS Tot. Rec. Metals	8-B	50	50						DR-2	
C131107-10 A	ICPMS Tot. Rec. Metals	8-B	50	50						DR-3	10x
C131107-13 A	ICPMS Tot. Rec. Metals	8-B	50	50						DR-4	
C131107-15 A	ICPMS Tot. Rec. Metals	8-B	50	50						DR-5	
C131107-17 A	ICPMS Tot. Rec. Metals	8-B	50	50						DR-6	
C131107-20 A	ICPMS Tot. Rec. Metals	8-B	50	50						DR-7	6
C131107-23 A	ICPMS Tot. Rec. Metals	8-B	50	50						MW-109S	10x
C131107-26 A	ICPMS Tot. Rec. Metals	8-B	50	50						MW-110	
C131107-29 A	ICPMS Tot. Rec. Metals	8-B	50	50						MW-2D	
C131107-31 A	ICPMS Tot. Rec. Metals	8-B	50	50						MW-3D	
C131107-02 A	ICPOE Tot. Rec. Metals	8-B	50	50						CHV-101U	
C131107-05 A	ICPOE Tot. Rec. Metals	8-B	50	50						DR-1	
C131107-08 A	ICPOE Tot. Rec. Metals	8-B	50	50						DR-2	
C131107-10 A	ICPOE Tot. Rec. Metals	8-B	50	50						DR-3	
C131107-13 A	ICPOE Tot. Rec. Metals	8-B	50	50						DR-4	
C131107-15 A	ICPOE Tot. Rec. Metals	8-B	50	50						DR-5	
C131107-17 A	ICPOE Tot. Rec. Metals	8-B	50	50						DR-6	
C131107-20 A	ICPOE Tot. Rec. Metals	8-B	50	50						DR-7	
C131107-23 A	ICPOE Tot. Rec. Metals	8-B	50	50						MW-109S	
C131107-26 A	ICPOE Tot. Rec. Metals	8-B	50	50						MW-110	
C131107-29 A	ICPOE Tot. Rec. Metals	8-B	50	50						MW-2D	
C131107-31 A	ICPOE Tot. Rec. Metals	8-B	50	50						MW-3D	

Preparation Reviewed By

Date

Page 1 of 2

# PREPARATION BENCH SHEET

1312035

TechLaw, Inc. - ESAT Region 8

Printed: 12/9/2013 8:14:53AM

Matrix: Water

Date Prepared: 12/09/13 08:09 By: SV

Prepared using: METALS - 200.2 - TR Metals

Lab Number	Analysis	EPA Tag ID	Initial (mL)	Final (mL)	Spike1 ID	ul Spike1	Spike2 ID	ul Spike2	Source ID	QC Code	Extraction Comments
1312035-BLK1	QC		50	50						Blank	
1312035-BLK2	QC		50	50						Blank	
1312035-DUP1	QC		50	50					C131107-02	Duplicate	
1312035-DUP2	QC		50	50					C131107-02	Duplicate	
1312035-MS1	QC		50	50	3020135	500	3020136	500	C131107-02	Matrix Spike	
1312035-MS2	QC		50	50	3020135	500	3020136	500	C131107-02	Matrix Spike	
1312035-MS3	QC		50	50	3020135	500	3020136	500	C131107-05	Matrix Spike	
1312035-MS4	QC		50	50	3020135	500	3020136	500	C131107-05	Matrix Spike	
1312035-SRM1	QC		50	50	3020145	500	3020146	500		Reference	
1312035-SRM2	QC		50	50	3020145	500	3020146	500		Reference	



## ANALYSIS SEQUENCE

1312045

12/11/13

Instrument: ICPOE - PE Optima

Sequence Date: 12/10/13 00:00

Printed: 12/11/2013 8:44:59AM

Lab Number	Dilut. Factor	Analysis	STD ID	Sample/Std Name	EPA Tag ID	Source Sple	Comments
1312045-ICV1		QC	3062601	Initial Cal Check		-	
1312045-SCV1		QC	3020406	Secondary Cal Check		-	
1312045-ICB1		QC		Initial Cal Blank		-	
1312045-CRL1		QC	3020411	Instrument RL Check		-	
1312045-IFA1		QC	3020408	Interference Check A		-	
1312045-IFB1		QC	3020409	Interference Check B		-	
1312039-BLK1		QC		Blank		-	
1312039-BS1		QC		LCS		-	
C131107-04 A		DM-Hardness - Calculated		DR-1	8-A		
C131107-04 A		ICPOE Diss. Metals		DR-1	8-A		
1312039-DUP1		QC		Duplicate		C131107-04	
1312045-SRD1		QC		Serial Dilution		C131107-04	
1312039-MS1		QC		Matrix Spike		C131107-04	
C131107-07 A		DM-Hardness - Calculated		DR-2	8-A		
C131107-07 A		ICPOE Diss. Metals		DR-2	8-A		
1312039-MS2		QC		Matrix Spike		C131107-07	
C131107-01 A		DM-Hardness - Calculated		CHV-101U	8-A		
C131107-01 A		ICPOE Diss. Metals		CHV-101U	8-A		
1312045-CCV1		QC	3020405	Calibration Check		-	
1312045-CCB1		QC		Calibration Blank		-	
C131107-09 A		DM-Hardness - Calculated		DR-3	8-A		
C131107-09 A		ICPOE Diss. Metals		DR-3	8-A		
C131107-12 A		DM-Hardness - Calculated		DR-4	8-A		
C131107-12 A		ICPOE Diss. Metals		DR-4	8-A		
C131107-14 A		DM-Hardness - Calculated		DR-5	8-A		
C131107-14 A		ICPOE Diss. Metals		DR-5	8-A		
C131107-16 A		DM-Hardness - Calculated		DR-6	8-A		
C131107-16 A		ICPOE Diss. Metals		DR-6	8-A		
C131107-19 A		DM-Hardness - Calculated		DR-7	8-A		
C131107-19 A		ICPOE Diss. Metals		DR-7	8-A		
C131107-22 A		DM-Hardness - Calculated		MW-109S	8-A		
C131107-22 A		ICPOE Diss. Metals		MW-109S	8-A		
C131107-25 A		DM-Hardness - Calculated		MW-110	8-A		
C131107-25 A		ICPOE Diss. Metals		MW-110	8-A		
C131107-28 A		DM-Hardness - Calculated		MW-2D	8-A		
C131107-28 A		ICPOE Diss. Metals		MW-2D	8-A		
C131107-30 A		DM-Hardness - Calculated		MW-3D	8-A		
C131107-30 A		ICPOE Diss. Metals		MW-3D	8-A		
1312045-CCV2		QC	3020405	Calibration Check		-	
1312045-CCB2		QC		Calibration Blank		-	

## ANALYSIS SEQUENCE

1312046

12/11/13

Instrument: ICPOE - PE Optima

Sequence Date: 12/10/13 00:00

































Printed: 12/11/2013 8:46:37AM

Lab Number	Dilut. Factor	Analysis	STD ID	Sample/Std Name	EPA Tag ID	Source Sple	Comments
1312046-ICV1		QC	3062601	Initial Cal Check		-	
1312046-SCV1		QC	3020406	Secondary Cal Check		-	
1312046-ICB1		QC		Initial Cal Blank		-	
1312046-CRL1		QC	3020411	Instrument RL Check		-	
1312046-IFA1		QC	3020408	Interference Check A		-	
1312046-IFB1		QC	3020409	Interference Check B		-	
1312046-CCV1		QC	3020405	Calibration Check		-	
1312046-CCB1		QC		Calibration Blank		-	
1312046-CCV2		QC	3020405	Calibration Check		-	
1312046-CCB2		QC		Calibration Blank		-	
1312035-BLK1		QC		Blank		-	
1312035-SRM1		QC		Reference		-	
C131107-02 A		ICPOE Tot. Rec. Metals		CHV-101U	8-B		
1312035-DUP1		QC		Duplicate		C131107-02	
1312046-SRD1		QC		Serial Dilution		C131107-02	
1312035-MS1		QC		Matrix Spike		C131107-02	
C131107-05 A		ICPOE Tot. Rec. Metals		DR-1	8-B		
1312035-MS3		QC		Matrix Spike		C131107-05	
C131107-08 A		ICPOE Tot. Rec. Metals		DR-2	8-B		
1312046-CCV3		QC	3020405	Calibration Check		-	
1312046-CCB3		QC		Calibration Blank		-	
C131107-10 A		ICPOE Tot. Rec. Metals		DR-3	8-B		
C131107-13 A		ICPOE Tot. Rec. Metals		DR-4	8-B		
C131107-15 A		ICPOE Tot. Rec. Metals		DR-5	8-B		
C131107-17 A		ICPOE Tot. Rec. Metals		DR-6	8-B		
C131107-20 A		ICPOE Tot. Rec. Metals		DR-7	8-B		
C131107-23 A		ICPOE Tot. Rec. Metals		MW-109S	8-B		
C131107-26 A		ICPOE Tot. Rec. Metals		MW-110	8-B		
C131107-29 A		ICPOE Tot. Rec. Metals		MW-2D	8-B		
C131107-31 A		ICPOE Tot. Rec. Metals		MW-3D	8-B		
1312046-CCV4		QC	3020405	Calibration Check		-	
1312046-CCB4		QC		Calibration Blank		-	

## Analytical Sequence

































Method : ESAT\_2013\_1.0

12/10/13

Seq.	Loc.		Sample ID
1	1		Cal Blank
2	9		High Std
3	3		SEQ-ICV
4	10		SEQ-SCV
5	1		SEQ-ICB
6	11		SEQ-CRL
7	12		SEQ-IFA
8	13		SEQ-IFB
9	26		1312039-BLK1
10	27		1312039-BS1
11	28		C131107-04
12	29		1312039-DUP1
13	30		SEQ-SRD1 @5X
14	31		1312039-MS1
15	32		C131107-07
16	33		1312039-MS2
17	34		C131107-01 @10X
18	35		Blank
19	3		SEQ-CCV
20	1		SEQ-CCB
21	36		C131107-09 @10X
22	37		C131107-12 @10X
23	38		C131107-14 @10X
24	39		C131107-16 @10X
25	40		C131107-19
26	41		C131107-22 @10X
27	42		C131107-25 @10X
28	43		C131107-28 @10X
29	44		C131107-30 @10X
30	45		Blank
31	3		SEQ-CCV
32	1		SEQ-CCB

# Analytical Sequence

Method : ESAT\_2013\_1.0

Seq.	Loc.		Sample ID
1	1		Cal Blank
2	9		High Std
3	3		SEQ-ICV
4	10		SEQ-SCV
5	1		SEQ-ICB
6	11		SEQ-CRL
7	12		SEQ-IFA
8	13		SEQ-IFB
9	26		1312035-BLK1
10	27		1312035-SRM1
11	28		C131107-02 @10X
12	29		1312035-DUP1 @10X
13	30		SEQ-SRD1 @50X
14	31		1312035-MS1 @10X
15	32		C131107-05
16	33		1312035-MS3
17	34		C131107-08
18	35		Blank
19	3		SEQ-CCV
20	1		SEQ-CCB
21	36		C131107-10 @10X
22	37		C131107-13 @10X
23	38		C131107-15 @10X
24	39		C131107-17 @10X
25	40		C131107-20
26	41		C131107-23 @10X
27	42		C131107-26 @10X
28	43		C131107-29 @10X
29	44		C131107-31 @10X
30	45		Blank
31	3		SEQ-CCV
32	1		SEQ-CCB

12/10/13

3

4

**Sample Information Detail Report**  
**Document Name: A-025\_1312039\_OED\_131210**

**File Description**

A-025 Rico Argentine Nov 2013

**Parameters Common to All Samples**

Batch ID	1312039
Analyst Name	S.VanOvermeiren
Volume Units	mL
Weight Units	g

**Parameters That Vary By Sample**

Sample No	A/S Location	Sample ID	Remarks
1	26	1312039-BLK1	
2	27	1312039-BS1	
3	28	C131107-04	
4	29	1312039-DUP1	
5	30	SEQ-SRD1 @5X	
6	31	1312039-MS1	
7	32	C131107-07	
8	33	1312039-MS2	
9	34	C131107-01 @10X	
10	35	Blank	
11	36	C131107-09 @10X	
12	37	C131107-12 @10X	
13	38	C131107-14 @10X	
14	39	C131107-16 @10X	
15	40	C131107-19	
16	41	C131107-22 @10X	
17	42	C131107-25 @10X	
18	43	C131107-28 @10X	
19	44	C131107-30 @10X	
20	45	Blank	

Sample No	Aliquot Volume	Diluted To Vol.	Matrix Check Sample
1			
2			Recovery 3 of 1
3			
4			Duplicate of 3
5	2	10	5X Dilution of 3
6			Recovery 3 of 3
7			
8			Recovery 3 of 7
9	1	10	
10			
11	1	10	
12	1	10	
13	1	10	
14	1	10	
15			
16	1	10	
17	1	10	
18	1	10	
19	1	10	
20			

**Sample Information Detail Report**  
**Document Name: A-025\_1312035\_TRA\_131210**

**File Description**

A-025 Rico Argentine Nov 2013

**Parameters Common to All Samples**

Batch ID	1312035
Analyst Name	S.VanOvermeiren
Volume Units	mL
Weight Units	g

**Parameters That Vary By Sample**

Sample No	A/S Location	Sample ID	Remarks
1	26	1312035-BLK1	
2	27	1312035-SRM1	
3	28	C131107-02 @10X	
4	29	1312035-DUP1 @10X	
5	30	SEQ-SRD1 @50X	
6	31	1312035-MS1 @10X	
7	32	C131107-05	
8	33	1312035-MS3	
9	34	C131107-08	
10	35	Blank	
11	36	C131107-10 @10X	
12	37	C131107-13 @10X	
13	38	C131107-15 @10X	
14	39	C131107-17 @10X	
15	40	C131107-20	
16	41	C131107-23 @10X	
17	42	C131107-26 @10X	
18	43	C131107-29 @10X	
19	44	C131107-31 @10X	
20	45	Blank	

Sample No	Aliquot Volume	Diluted To Vol.	Matrix Check Sample
1			
2			Recovery 2 of 1
3	1	10	
4	1	10	Duplicate of 3
5	2	10	5X Dilution of 3
6	1	10	Recovery 1 of 3
7			
8			Recovery 1 of 7
9			
10			
11	1	10	
12	1	10	
13	1	10	
14	1	10	
15			
16	1	10	
17	1	10	
18	1	10	
19	1	10	
20			

## =====

Analysis Begun

Start Time: 12/10/2013 12:56:43 PM      Plasma On Time: 12/10/2013 11:59:25 AM  
Logged In Analyst: esat      Technique: ICP Continuous  
Spectrometer Model: Optima 4300 DV, S/N 077N3082602 Autosampler Model: AS-93plus

Sample Information File: C:\pe\Administrator\Sample Information\2013\A-025\_1312039\_OED\_131210.sif  
Batch ID: 1312039  
Results Data Set: A025\_1312039\_131210B  
Results Library: C:\pe\Administrator\Results\Results.mdb

=====

Sequence No.: 1	Autosampler Location: 1
Sample ID: Cal Blank	Date Collected: 12/10/2013 12:56:44 PM
Analyst:	Data Type: Original
Initial Sample Wt:	Initial Sample Vol:
Dilution:	Sample Prep Vol:

## -----

Nebulizer Parameters: Cal Blank

Analyte	Back Pressure	Flow
All	195.0 kPa	0.80 L/min

## -----

Mean Data: Cal Blank

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc. Units
Sc Axial	3882461.7	22650.04	0.58%	100.0 %
Sc Radial	422272.4	8952.67	2.12%	100.0 %
Ag 328.068†	-1592.8	85.37	5.36%	[0.00] ug/L
Al 396.153†	-400.8	40.91	10.21%	[0.00] ug/L
As 193.696†	-67.7	2.24	3.31%	[0.00] ug/L
Ba 233.527†	-64.5	8.89	13.77%	[0.00] ug/L
Be 313.107†	-1885.3	55.41	2.94%	[0.00] ug/L
B 249.677†	-2298.2	10.44	0.45%	[0.00] ug/L
Ca 317.933†	-4.9	15.17	307.00%	[0.00] ug/L
Cd 214.440†	-74.1	7.10	9.58%	[0.00] ug/L
Co 228.616†	-4.2	6.74	160.68%	[0.00] ug/L
Cr 267.716†	8.3	2.37	28.47%	[0.00] ug/L
Cu 324.752†	6740.8	1.44	0.02%	[0.00] ug/L
Fe 238.204†	45.7	3.84	8.41%	[0.00] ug/L
K 766.490†	28.1	61.80	219.88%	[0.00] ug/L
Mg 285.213†	28.5	5.09	17.85%	[0.00] ug/L
Mn 257.610†	-61.2	17.71	28.92%	[0.00] ug/L
Mo 202.031†	-11.4	4.75	41.58%	[0.00] ug/L
Na 589.592†	980.0	61.30	6.25%	[0.00] ug/L
Ni 231.604†	737.1	5.02	0.68%	[0.00] ug/L
Pb 220.353†	-103.4	4.16	4.02%	[0.00] ug/L
Sb 206.836†	72.9	6.77	9.30%	[0.00] ug/L
Se 196.026†	4.1	2.33	56.34%	[0.00] ug/L
SiO2 251.603†	252.9	54.19	21.43%	[0.00] ug/L
Sr 421.552†	57391.5	339.52	0.59%	[0.00] ug/L
Ti 334.940†	537.4	40.94	7.62%	[0.00] ug/L
Tl 190.801†	0.3	2.98	874.60%	[0.00] ug/L
V 290.880†	3801.6	24.30	0.64%	[0.00] ug/L
Zn 206.200†	-61.5	5.03	8.17%	[0.00] ug/L

Sequence No.: 2

Sample ID: High Std

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 9

Date Collected: 12/10/2013 12:59:44 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

## Nebulizer Parameters: High Std

Analyte	Back Pressure	Flow
All	197.0 kPa	0.80 L/min

## Mean Data: High Std

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc. Units	Calib
Sc Axial	3950020.1	23361.72	0.59%	101.7	%
Sc Radial	432441.0	10264.97	2.37%	102.4	%
Ag 328.068†	62991.3	652.39	1.04%	[500]	ug/L
Al 396.153†	131910.0	5081.42	3.85%	[25000]	ug/L
As 193.696†	2221.0	28.02	1.26%	[5000]	ug/L
Ba 233.527†	36744.6	417.37	1.14%	[1000]	ug/L
Be 313.107†	1526354.7	31894.79	2.09%	[1000]	ug/L
B 249.677†	226389.1	2403.31	1.06%	[10000]	ug/L
Ca 317.933†	207163.9	7521.86	3.63%	[25000]	ug/L
Cd 214.440†	25616.0	251.17	0.98%	[1000]	ug/L
Co 228.616†	16048.9	150.94	0.94%	[1000]	ug/L
Cr 267.716†	109910.1	998.86	0.91%	[5000]	ug/L
Cu 324.752†	442020.7	10136.61	2.29%	[2000]	ug/L
Fe 238.204†	2996.9	74.48	2.49%	[25000]	ug/L
K 766.490†	94279.2	3378.83	3.58%	[50000]	ug/L
Mg 285.213†	198727.0	7315.50	3.68%	[25000]	ug/L
Mn 257.610†	905602.8	18109.28	2.00%	[2000]	ug/L
Mo 202.031†	1732.4	12.81	0.74%	[1000]	ug/L
Na 589.592†	124039.1	4465.93	3.60%	[25000]	ug/L
Ni 231.604†	55261.9	469.04	0.85%	[5000]	ug/L
Pb 220.353†	9534.7	96.18	1.01%	[5000]	ug/L
Sb 206.836†	3683.5	46.13	1.25%	[5000]	ug/L
Se 196.026†	1783.0	23.12	1.30%	[5000]	ug/L
SiO2 251.603†	202920.9	2161.70	1.07%	[20000]	ug/L
Sr 421.552†	3914731.1	64454.32	1.65%	[1000]	ug/L
Ti 334.940†	428413.6	8607.96	2.01%	[1000]	ug/L
Tl 190.801†	3934.2	30.36	0.77%	[5000]	ug/L
V 290.880†	152836.9	1540.92	1.01%	[2000]	ug/L
Zn 206.200†	51040.6	561.88	1.10%	[5000]	ug/L

## Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
Ag 328.068	1	Lin Thru 0	0.0	126.0	0.00000	1.000000	
Al 396.153	1	Lin, Calc Int	0.0	5.276	0.00000	1.000000	
As 193.696	1	Lin Thru 0	0.0	0.4442	0.00000	1.000000	
Ba 233.527	1	Lin Thru 0	0.0	36.74	0.00000	1.000000	
Be 313.107	1	Lin Thru 0	0.0	1526	0.00000	1.000000	
B 249.677	1	Lin Thru 0	0.0	22.64	0.00000	1.000000	
Ca 317.933	1	Lin Thru 0	0.0	8.287	0.00000	1.000000	
Cd 214.440	1	Lin Thru 0	0.0	25.62	0.00000	1.000000	
Co 228.616	1	Lin Thru 0	0.0	16.05	0.00000	1.000000	
Cr 267.716	1	Lin Thru 0	0.0	21.98	0.00000	1.000000	
Cu 324.752	1	Lin Thru 0	0.0	221.0	0.00000	1.000000	
Fe 238.204	1	Lin, Calc Int	0.0	0.1199	0.00000	1.000000	
K 766.490	1	Lin Thru 0	0.0	1.886	0.00000	1.000000	
Mg 285.213	1	Lin, Calc Int	0.0	7.949	0.00000	1.000000	
Mn 257.610	1	Lin Thru 0	0.0	452.8	0.00000	1.000000	
Mo 202.031	1	Lin Thru 0	0.0	1.732	0.00000	1.000000	
Na 589.592	1	Lin, Calc Int	0.0	4.962	0.00000	1.000000	
Ni 231.604	1	Lin Thru 0	0.0	11.05	0.00000	1.000000	
Pb 220.353	1	Lin Thru 0	0.0	1.907	0.00000	1.000000	
Sb 206.836	1	Lin Thru 0	0.0	0.7367	0.00000	1.000000	



Se 196.026	1	Lin Thru 0	0.0	0.3566	0.00000	1.000000
SiO2 251.603	1	Lin, Calc Int	0.0	10.15	0.00000	1.000000
Sr 421.552	1	Lin, Calc Int	0.0	3915	0.00000	1.000000
Ti 334.940	1	Lin Thru 0	0.0	428.4	0.00000	1.000000
Tl 190.801	1	Lin Thru 0	0.0	0.7868	0.00000	1.000000
V 290.880	1	Lin Thru 0	0.0	76.42	0.00000	1.000000
Zn 206.200	1	Lin Thru 0	0.0	10.21	0.00000	1.000000

Sequence No.: 3

Sample ID: SEQ-ICV

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 3

Date Collected: 12/10/2013 1:02:59 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

## Nebulizer Parameters: SEQ-ICV

Analyte	Back Pressure	Flow
All	195.0 kPa	0.80 L/min

## Mean Data: SEQ-ICV

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3942848.9	101.6 %	0.22			0.22%
Sc Radial	423908.5	100.4 %	0.83			0.82%
Ag 328.068†	32028.0	258.3 ug/L	0.89	258.3 ug/L	0.89	0.34%
QC value within limits for Ag 328.068 Recovery = 103.30%						
Al 396.153†	67275.8	12750 ug/L	89.7	12750 ug/L	89.7	0.70%
QC value within limits for Al 396.153 Recovery = 101.97%						
As 193.696†	1141.8	2608 ug/L	13.7	2608 ug/L	13.7	0.53%
QC value within limits for As 193.696 Recovery = 104.34%						
Ba 233.527†	19022.5	514.8 ug/L	1.18	514.8 ug/L	1.18	0.23%
QC value within limits for Ba 233.527 Recovery = 102.96%						
Be 313.107†	789959.9	517.3 ug/L	0.94	517.3 ug/L	0.94	0.18%
QC value within limits for Be 313.107 Recovery = 103.46%						
B 249.677†	116503.7	5146 ug/L	14.6	5146 ug/L	14.6	0.28%
QC value within limits for B 249.677 Recovery = 102.92%						
Ca 317.933†	104782.4	12580 ug/L	155.4	12580 ug/L	155.4	1.24%
QC value within limits for Ca 317.933 Recovery = 100.66%						
Cd 214.440†	13211.2	515.6 ug/L	1.16	515.6 ug/L	1.16	0.23%
QC value within limits for Cd 214.440 Recovery = 103.12%						
Co 228.616†	8277.9	516.3 ug/L	1.83	516.3 ug/L	1.83	0.35%
QC value within limits for Co 228.616 Recovery = 103.25%						
Cr 267.716†	56865.7	2588 ug/L	7.6	2588 ug/L	7.6	0.29%
QC value within limits for Cr 267.716 Recovery = 103.51%						
Cu 324.752†	222804.8	1012 ug/L	2.0	1012 ug/L	2.0	0.20%
QC value within limits for Cu 324.752 Recovery = 101.18%						
Fe 238.204†	1503.3	12510 ug/L	225.8	12510 ug/L	225.8	1.80%
QC value within limits for Fe 238.204 Recovery = 100.09%						
K 766.490†	48197.5	25400 ug/L	154.4	25400 ug/L	154.4	0.61%
QC value within limits for K 766.490 Recovery = 101.61%						
Mg 285.213†	102236.2	12850 ug/L	142.7	12850 ug/L	142.7	1.11%
QC value within limits for Mg 285.213 Recovery = 102.81%						
Mn 257.610†	469074.8	1035 ug/L	1.2	1035 ug/L	1.2	0.11%
QC value within limits for Mn 257.610 Recovery = 103.48%						
Mo 202.031†	882.9	507.2 ug/L	0.83	507.2 ug/L	0.83	0.16%
QC value within limits for Mo 202.031 Recovery = 101.43%						
Na 589.592†	63371.9	12660 ug/L	106.1	12660 ug/L	106.1	0.84%
QC value within limits for Na 589.592 Recovery = 101.26%						
Ni 231.604†	28594.8	2587 ug/L	4.0	2587 ug/L	4.0	0.16%
QC value within limits for Ni 231.604 Recovery = 103.49%						
Pb 220.353†	4900.6	2565 ug/L	9.8	2565 ug/L	9.8	0.38%
QC value within limits for Pb 220.353 Recovery = 102.58%						
Sb 206.836†	1899.6	2545 ug/L	19.3	2545 ug/L	19.3	0.76%
QC value within limits for Sb 206.836 Recovery = 101.80%						
Se 196.026†	912.3	2562 ug/L	10.7	2562 ug/L	10.7	0.42%
QC value within limits for Se 196.026 Recovery = 102.49%						
SiO2 251.603†	104448.0	10280 ug/L	8.5	10280 ug/L	8.5	0.08%
QC value within limits for SiO2 251.603 Recovery = 102.78%						
Sr 421.552†	2047184.2	521.7 ug/L	1.58	521.7 ug/L	1.58	0.30%
QC value within limits for Sr 421.552 Recovery = 104.34%						
Ti 334.940†	220391.3	514.4 ug/L	0.34	514.4 ug/L	0.34	0.07%
QC value within limits for Ti 334.940 Recovery = 102.89%						
Tl 190.801†	2036.8	2592 ug/L	30.6	2592 ug/L	30.6	1.18%
QC value within limits for Tl 190.801 Recovery = 103.69%						
V 290.880†	78621.0	1027 ug/L	2.0	1027 ug/L	2.0	0.19%
QC value within limits for V 290.880 Recovery = 102.74%						

Zn 206.200† 26533.6 2593 ug/L 7.9 2593 ug/L 7.9 0.31%  
QC value within limits for Zn 206.200 Recovery = 103.73%  
All analyte(s) passed QC.

Sequence No.: 4  
 Sample ID: SEQ-SCV  
 Analyst:  
 Initial Sample Wt:  
 Dilution:

Autosampler Location: 10  
 Date Collected: 12/10/2013 1:06:06 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: SEQ-SCV

Analyte	Back Pressure	Flow
All	195.0 kPa	0.80 L/min

## Mean Data: SEQ-SCV

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3901983.0	100.5 %	0.24			0.24%
Sc Radial	432707.8	102.5 %	1.92			1.87%
Ag 328.068†	31213.6	251.3 ug/L	1.65	251.3 ug/L	1.65	0.66%
	QC value within limits for Ag 328.068 Recovery = 100.52%					
Al 396.153†	5058.7	936.5 ug/L	25.56	936.5 ug/L	25.56	2.73%
	QC value within limits for Al 396.153 Recovery = 93.65%					
As 193.696†	904.9	2057 ug/L	21.7	2057 ug/L	21.7	1.05%
	QC value within limits for As 193.696 Recovery = 102.84%					
Ba 233.527†	37382.9	1015 ug/L	4.9	1015 ug/L	4.9	0.49%
	QC value within limits for Ba 233.527 Recovery = 101.55%					
Be 313.107†	1515710.8	992.9 ug/L	2.66	992.9 ug/L	2.66	0.27%
	QC value within limits for Be 313.107 Recovery = 99.29%					
B 249.677†	23471.3	1037 ug/L	12.1	1037 ug/L	12.1	1.17%
	QC value within limits for B 249.677 Recovery = 103.68%					
Ca 317.933†	7984.8	910.1 ug/L	16.99	910.1 ug/L	16.99	1.87%
	QC value within limits for Ca 317.933 Recovery = 91.01%					
Cd 214.440†	25890.5	1011 ug/L	1.0	1011 ug/L	1.0	0.10%
	QC value within limits for Cd 214.440 Recovery = 101.06%					
Co 228.616†	16445.8	1026 ug/L	4.9	1026 ug/L	4.9	0.48%
	QC value within limits for Co 228.616 Recovery = 102.56%					
Cr 267.716†	22388.8	1020 ug/L	5.6	1020 ug/L	5.6	0.55%
	QC value within limits for Cr 267.716 Recovery = 101.96%					
Cu 324.752†	213036.8	965.8 ug/L	2.14	965.8 ug/L	2.14	0.22%
	QC value within limits for Cu 324.752 Recovery = 96.58%					
Fe 238.204†	109.5	899.3 ug/L	33.30	899.3 ug/L	33.30	3.70%
	QC value less than the lower limit for Fe 238.204 Recovery = 89.93%					
K 766.490†	9499.1	4795 ug/L	80.7	4795 ug/L	80.7	1.68%
	QC value within limits for K 766.490 Recovery = 95.90%					
Mg 285.213†	7861.1	979.6 ug/L	12.65	979.6 ug/L	12.65	1.29%
	QC value within limits for Mg 285.213 Recovery = 97.96%					
Mn 257.610†	455208.5	1004 ug/L	2.8	1004 ug/L	2.8	0.28%
	QC value within limits for Mn 257.610 Recovery = 100.45%					
Mo 202.031†	1742.2	1005 ug/L	1.6	1005 ug/L	1.6	0.16%
	QC value within limits for Mo 202.031 Recovery = 100.55%					
Na 589.592†	5027.5	930.9 ug/L	17.78	930.9 ug/L	17.78	1.91%
	QC value within limits for Na 589.592 Recovery = 93.09%					
Ni 231.604†	11354.2	1029 ug/L	6.0	1029 ug/L	6.0	0.59%
	QC value within limits for Ni 231.604 Recovery = 102.92%					
Pb 220.353†	3868.4	2022 ug/L	12.4	2022 ug/L	12.4	0.62%
	QC value within limits for Pb 220.353 Recovery = 101.08%					
Sb 206.836†	1496.0	2024 ug/L	16.0	2024 ug/L	16.0	0.79%
	QC value within limits for Sb 206.836 Recovery = 101.22%					
Se 196.026†	351.1	986.4 ug/L	22.67	986.4 ug/L	22.67	2.30%
	QC value within limits for Se 196.026 Recovery = 98.64%					
SiO2 251.603†	52595.7	5129 ug/L	34.2	5129 ug/L	34.2	0.67%
	QC value within limits for SiO2 251.603 Recovery = 102.58%					
Sr 421.552†	3970049.3	1014 ug/L	4.4	1014 ug/L	4.4	0.43%
	QC value within limits for Sr 421.552 Recovery = 101.36%					
Ti 334.940†	430349.3	1005 ug/L	3.0	1005 ug/L	3.0	0.30%
	QC value within limits for Ti 334.940 Recovery = 100.45%					
Tl 190.801†	4036.4	5136 ug/L	22.1	5136 ug/L	22.1	0.43%
	QC value within limits for Tl 190.801 Recovery = 102.71%					
V 290.880†	75711.0	992.4 ug/L	4.62	992.4 ug/L	4.62	0.47%
	QC value within limits for V 290.880 Recovery = 99.24%					

Zn 206.200† 10593.9 1030 ug/L 3.1 1030 ug/L 3.1 0.30%  
QC value within limits for Zn 206.200 Recovery = 103.00%  
QC Failed. Continue with analysis.

Sequence No.: 5

Sample ID: SEQ-ICB

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 1

Date Collected: 12/10/2013 1:09:20 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

## Nebulizer Parameters: SEQ-ICB

Analyte	Back Pressure	Flow
All	195.0 kPa	0.80 L/min

## Mean Data: SEQ-ICB

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3853622.4	99.26 %	3.297			3.32%
Sc Radial	429342.8	101.7 %	0.87			0.86%
Ag 328.068†	-120.1	-0.9519 ug/L	0.56646	-0.9519 ug/L	0.56646	59.51%
QC value within limits for Ag 328.068		Recovery = Not calculated				
Al 396.153†	70.9	13.35 ug/L	13.144	13.35 ug/L	13.144	98.48%
QC value within limits for Al 396.153		Recovery = Not calculated				
As 193.696†	1.8	4.136 ug/L	8.5994	4.136 ug/L	8.5994	207.90%
QC value within limits for As 193.696		Recovery = Not calculated				
Ba 233.527†	4.0	0.1111 ug/L	0.13800	0.1111 ug/L	0.13800	124.26%
QC value within limits for Ba 233.527		Recovery = Not calculated				
Be 313.107†	-237.9	-0.1562 ug/L	0.07174	-0.1562 ug/L	0.07174	45.92%
QC value within limits for Be 313.107		Recovery = Not calculated				
B 249.677†	252.2	11.14 ug/L	2.586	11.14 ug/L	2.586	23.21%
QC value within limits for B 249.677		Recovery = Not calculated				
Ca 317.933†	-1.0	-0.1263 ug/L	1.49383	-0.1263 ug/L	1.49383	>999.9%
QC value within limits for Ca 317.933		Recovery = Not calculated				
Cd 214.440†	-0.5	-0.0211 ug/L	0.15022	-0.0211 ug/L	0.15022	710.82%
QC value within limits for Cd 214.440		Recovery = Not calculated				
Co 228.616†	3.3	0.2040 ug/L	0.10656	0.2040 ug/L	0.10656	52.23%
QC value within limits for Co 228.616		Recovery = Not calculated				
Cr 267.716†	7.3	0.3328 ug/L	0.29056	0.3328 ug/L	0.29056	87.30%
QC value within limits for Cr 267.716		Recovery = Not calculated				
Cu 324.752†	308.5	1.401 ug/L	1.2978	1.401 ug/L	1.2978	92.64%
QC value within limits for Cu 324.752		Recovery = Not calculated				
Fe 238.204†	5.1	42.36 ug/L	6.668	42.36 ug/L	6.668	15.74%
QC value within limits for Fe 238.204		Recovery = Not calculated				
K 766.490†	144.5	76.10 ug/L	37.190	76.10 ug/L	37.190	48.87%
QC value within limits for K 766.490		Recovery = Not calculated				
Mg 285.213†	0.3	0.0434 ug/L	0.62005	0.0434 ug/L	0.62005	>999.9%
QC value within limits for Mg 285.213		Recovery = Not calculated				
Mn 257.610†	44.5	0.0985 ug/L	0.01174	0.0985 ug/L	0.01174	11.92%
QC value within limits for Mn 257.610		Recovery = Not calculated				
Mo 202.031†	3.2	1.857 ug/L	1.8306	1.857 ug/L	1.8306	98.58%
QC value within limits for Mo 202.031		Recovery = Not calculated				
Na 589.592†	-20.8	-4.176 ug/L	25.0501	-4.176 ug/L	25.0501	599.79%
QC value within limits for Na 589.592		Recovery = Not calculated				
Ni 231.604†	23.6	2.132 ug/L	2.2719	2.132 ug/L	2.2719	106.57%
QC value within limits for Ni 231.604		Recovery = Not calculated				
Pb 220.353†	3.9	2.073 ug/L	0.8030	2.073 ug/L	0.8030	38.73%
QC value within limits for Pb 220.353		Recovery = Not calculated				
Sb 206.836†	9.5	12.92 ug/L	15.028	12.92 ug/L	15.028	116.31%
QC value within limits for Sb 206.836		Recovery = Not calculated				
Se 196.026†	-10.1	-28.41 ug/L	14.630	-28.41 ug/L	14.630	51.50%
QC value within limits for Se 196.026		Recovery = Not calculated				
SiO2 251.603†	-39.3	-3.850 ug/L	1.7451	-3.850 ug/L	1.7451	45.33%
QC value within limits for SiO2 251.603		Recovery = Not calculated				
Sr 421.552†	1510.3	0.383 ug/L	0.4960	0.383 ug/L	0.4960	129.46%
QC value within limits for Sr 421.552		Recovery = Not calculated				
Ti 334.940†	315.5	0.736 ug/L	0.1165	0.736 ug/L	0.1165	15.81%
QC value within limits for Ti 334.940		Recovery = Not calculated				
Tl 190.801†	4.2	5.390 ug/L	2.2620	5.390 ug/L	2.2620	41.97%
QC value within limits for Tl 190.801		Recovery = Not calculated				
V 290.880†	177.2	2.328 ug/L	1.5116	2.328 ug/L	1.5116	64.92%
QC value within limits for V 290.880		Recovery = Not calculated				

Zn 206.200+ -0.2 -0.021 ug/L 0.4128 -0.021 ug/L 0.4128 >999.9%  
QC value within limits for Zn 206.200 Recovery = Not calculated  
All analyte(s) passed QC.

Sequence No.: 6

Sample ID: SEQ-CRL

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 11

Date Collected: 12/10/2013 1:12:21 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

## Nebulizer Parameters: SEQ-CRL

Analyte	Back Pressure	Flow
All	197.0 kPa	0.80 L/min

## Mean Data: SEQ-CRL

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3859955.3	99.42 %	0.364			0.37%
Sc Radial	409206.3	96.91 %	1.351			1.39%
Ag 328.068†	1214.3	9.732 ug/L	1.0792	9.732 ug/L	1.0792	11.09%
	QC value within limits for Ag 328.068	Recovery = 97.32%				
Al 396.153†	598.3	113.4 ug/L	12.50	113.4 ug/L	12.50	11.02%
	QC value within limits for Al 396.153	Recovery = 113.40%				
As 193.696†	24.4	56.40 ug/L	2.998	56.40 ug/L	2.998	5.32%
	QC value within limits for As 193.696	Recovery = 112.80%				
Ba 233.527†	381.6	10.34 ug/L	0.103	10.34 ug/L	0.103	0.99%
	QC value within limits for Ba 233.527	Recovery = 103.40%				
Be 313.107†	7543.7	4.937 ug/L	0.0384	4.937 ug/L	0.0384	0.78%
	QC value within limits for Be 313.107	Recovery = 98.73%				
B 249.677†	5909.5	261.0 ug/L	2.03	261.0 ug/L	2.03	0.78%
	QC value within limits for B 249.677	Recovery = 104.41%				
Ca 317.933†	2107.0	252.7 ug/L	3.17	252.7 ug/L	3.17	1.25%
	QC value within limits for Ca 317.933	Recovery = 101.08%				
Cd 214.440†	256.8	10.03 ug/L	0.256	10.03 ug/L	0.256	2.55%
	QC value within limits for Cd 214.440	Recovery = 100.28%				
Co 228.616†	173.1	10.81 ug/L	0.680	10.81 ug/L	0.680	6.29%
	QC value within limits for Co 228.616	Recovery = 108.10%				
Cr 267.716†	224.3	10.26 ug/L	0.093	10.26 ug/L	0.093	0.91%
	QC value within limits for Cr 267.716	Recovery = 102.57%				
Cu 324.752†	2050.2	9.329 ug/L	0.3212	9.329 ug/L	0.3212	3.44%
	QC value within limits for Cu 324.752	Recovery = 93.29%				
Fe 238.204†	13.0	107.7 ug/L	10.01	107.7 ug/L	10.01	9.30%
	QC value within limits for Fe 238.204	Recovery = 107.69%				
K 766.490†	1963.0	1038 ug/L	44.7	1038 ug/L	44.7	4.31%
	QC value within limits for K 766.490	Recovery = 103.76%				
Mg 285.213†	8349.8	1050 ug/L	1.5	1050 ug/L	1.5	0.15%
	QC value within limits for Mg 285.213	Recovery = 105.01%				
Mn 257.610†	4751.2	10.45 ug/L	0.069	10.45 ug/L	0.069	0.66%
	QC value within limits for Mn 257.610	Recovery = 104.53%				
Mo 202.031†	16.7	9.585 ug/L	0.6424	9.585 ug/L	0.6424	6.70%
	QC value within limits for Mo 202.031	Recovery = 95.85%				
Na 589.592†	5124.4	1031 ug/L	12.0	1031 ug/L	12.0	1.16%
	QC value within limits for Na 589.592	Recovery = 103.06%				
Ni 231.604†	117.9	10.69 ug/L	0.772	10.69 ug/L	0.772	7.22%
	QC value within limits for Ni 231.604	Recovery = 106.92%				
Pb 220.353†	60.8	31.69 ug/L	4.832	31.69 ug/L	4.832	15.25%
	QC value within limits for Pb 220.353	Recovery = 105.63%				
Sb 206.836†	34.1	46.11 ug/L	3.579	46.11 ug/L	3.579	7.76%
	QC value within limits for Sb 206.836	Recovery = 92.23%				
Se 196.026†	26.4	74.11 ug/L	27.298	74.11 ug/L	27.298	36.83%
	QC value within limits for Se 196.026	Recovery = 74.11%				
SiO2 251.603†	2536.9	249.3 ug/L	3.36	249.3 ug/L	3.36	1.35%
	QC value within limits for SiO2 251.603	Recovery = 99.72%				
Sr 421.552†	41454.1	10.57 ug/L	0.072	10.57 ug/L	0.072	0.69%
	QC value within limits for Sr 421.552	Recovery = 105.71%				
Ti 334.940†	21736.9	50.74 ug/L	0.349	50.74 ug/L	0.349	0.69%
	QC value within limits for Ti 334.940	Recovery = 101.48%				
Tl 190.801†	45.1	58.01 ug/L	8.402	58.01 ug/L	8.402	14.48%
	QC value within limits for Tl 190.801	Recovery = 116.01%				
V 290.880†	3803.7	49.69 ug/L	0.434	49.69 ug/L	0.434	0.87%
	QC value within limits for V 290.880	Recovery = 99.38%				



Zn 206.200†	534.9	52.18 ug/L	0.166	52.18 ug/L	0.166	0.32%
-------------	-------	------------	-------	------------	-------	-------

QC value within limits for Zn 206.200 Recovery = 104.37%

All analyte(s) passed QC.

Sequence No.: 7

Sample ID: SEQ-IFA

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 12

Date Collected: 12/10/2013 1:15:25 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

## Nebulizer Parameters: SEQ-IFA

Analyte	Back Pressure	Flow
All	195.0 kPa	0.80 L/min

## Mean Data: SEQ-IFA

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3782189.8	97.42 %	0.210			0.22%
Sc Radial	417328.1	98.83 %	1.164			1.18%
Ag 328.068†	-1624.3	1.683 ug/L	0.4856	1.683 ug/L	0.4856	28.86%
QC value within limits for Ag 328.068 Recovery = Not calculated						
Al 396.153†	303161.2	57390 ug/L	903.2	57390 ug/L	903.2	1.57%
QC value within limits for Al 396.153 Recovery = 95.64%						
As 193.696†	-70.5	57.25 ug/L	20.895	57.25 ug/L	20.895	36.50%
QC value greater than the upper limit for As 193.696 Recovery = Not calculated						
Ba 233.527†	-15.0	-4.966 ug/L	0.0557	-4.966 ug/L	0.0557	1.12%
QC value within limits for Ba 233.527 Recovery = Not calculated						
Be 313.107†	-198.7	-0.8364 ug/L	0.02208	-0.8364 ug/L	0.02208	2.64%
QC value within limits for Be 313.107 Recovery = Not calculated						
B 249.677†	197.2	8.711 ug/L	0.9022	8.711 ug/L	0.9022	10.36%
QC value within limits for B 249.677 Recovery = Not calculated						
Ca 317.933†	2310386.7	278800 ug/L	4172.4	278800 ug/L	4172.4	1.50%
QC value within limits for Ca 317.933 Recovery = 92.93%						
Cd 214.440†	-53.1	-3.660 ug/L	0.1574	-3.660 ug/L	0.1574	4.30%
QC value within limits for Cd 214.440 Recovery = Not calculated						
Co 228.616†	145.6	3.658 ug/L	0.3062	3.658 ug/L	0.3062	8.37%
QC value within limits for Co 228.616 Recovery = Not calculated						
Cr 267.716†	-64.8	-1.497 ug/L	0.1459	-1.497 ug/L	0.1459	9.75%
QC value within limits for Cr 267.716 Recovery = Not calculated						
Cu 324.752†	-8431.1	-0.7465 ug/L	0.22989	-0.7465 ug/L	0.22989	30.80%
QC value within limits for Cu 324.752 Recovery = Not calculated						
Fe 238.204†	27035.4	225500 ug/L	337.2	225500 ug/L	337.2	0.15%
QC value within limits for Fe 238.204 Recovery = 90.20%						
K 766.490†	287.0	53.97 ug/L	18.230	53.97 ug/L	18.230	33.78%
QC value within limits for K 766.490 Recovery = Not calculated						
Mg 285.213†	1090360.4	137200 ug/L	1982.6	137200 ug/L	1982.6	1.45%
QC value within limits for Mg 285.213 Recovery = 91.46%						
Mn 257.610†	480.3	-1.335 ug/L	0.0726	-1.335 ug/L	0.0726	5.44%
QC value within limits for Mn 257.610 Recovery = Not calculated						
Mo 202.031†	23.9	-10.42 ug/L	1.533	-10.42 ug/L	1.533	14.71%
QC value less than the lower limit for Mo 202.031 Recovery = Not calculated						
Na 589.592†	244085.1	49080 ug/L	652.7	49080 ug/L	652.7	1.33%
QC value within limits for Na 589.592 Recovery = 98.15%						
Ni 231.604†	376.6	-2.864 ug/L	0.0723	-2.864 ug/L	0.0723	2.52%
QC value within limits for Ni 231.604 Recovery = Not calculated						
Pb 220.353†	-96.8	16.60 ug/L	3.392	16.60 ug/L	3.392	20.44%
QC value within limits for Pb 220.353 Recovery = Not calculated						
Sb 206.836†	43.2	51.25 ug/L	3.379	51.25 ug/L	3.379	6.59%
QC value within limits for Sb 206.836 Recovery = Not calculated						
Se 196.026†	-17.4	-13.26 ug/L	36.050	-13.26 ug/L	36.050	271.92%
QC value within limits for Se 196.026 Recovery = Not calculated						
SiO2 251.603†	248.2	101.2 ug/L	2.30	101.2 ug/L	2.30	2.27%
QC value within limits for SiO2 251.603 Recovery = Not calculated						
Sr 421.552†	58636.6	-0.907 ug/L	0.0478	-0.907 ug/L	0.0478	5.27%
QC value within limits for Sr 421.552 Recovery = Not calculated						
Ti 334.940†	-146.8	-0.343 ug/L	0.0264	-0.343 ug/L	0.0264	7.70%
QC value within limits for Ti 334.940 Recovery = Not calculated						
Tl 190.801†	19.6	13.64 ug/L	12.309	13.64 ug/L	12.309	90.23%
QC value within limits for Tl 190.801 Recovery = Not calculated						
V 290.880†	920.7	-17.03 ug/L	0.397	-17.03 ug/L	0.397	2.33%
QC value within limits for V 290.880 Recovery = Not calculated						

Zn 206.200† 0.0 -0.873 ug/L 0.3983 -0.873 ug/L 0.3983 45.60%  
QC value within limits for Zn 206.200 Recovery = Not calculated  
QC Failed. Continue with analysis.

Sequence No.: 8

Sample ID: SEQ-IFB

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 13

Date Collected: 12/10/2013 1:19:08 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

## Nebulizer Parameters: SEQ-IFB

Analyte	Back Pressure	Flow
All	195.0 kPa	0.80 L/min

## Mean Data: SEQ-IFB

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3768847.4	97.07 %	0.092			0.09%
Sc Radial	421865.8	99.90 %	0.453			0.45%
Ag 328.068†	37762.3	316.7 ug/L	1.93	316.7 ug/L	1.93	0.61%
	QC value within limits for Ag 328.068	Recovery = 105.55%				
Al 396.153†	301412.6	57060 ug/L	845.8	57060 ug/L	845.8	1.48%
	QC value within limits for Al 396.153	Recovery = 95.11%				
As 193.696†	380.8	1078 ug/L	25.1	1078 ug/L	25.1	2.33%
	QC value within limits for As 193.696	Recovery = 107.85%				
Ba 233.527†	10751.3	286.6 ug/L	1.34	286.6 ug/L	1.34	0.47%
	QC value within limits for Ba 233.527	Recovery = 95.54%				
Be 313.107†	147672.8	95.95 ug/L	0.673	95.95 ug/L	0.673	0.70%
	QC value within limits for Be 313.107	Recovery = 95.95%				
B 249.677†	11683.5	516.1 ug/L	4.45	516.1 ug/L	4.45	0.86%
	QC value within limits for B 249.677	Recovery = 103.22%				
Ca 317.933†	2296480.7	277100 ug/L	4188.0	277100 ug/L	4188.0	1.51%
	QC value within limits for Ca 317.933	Recovery = 92.36%				
Cd 214.440†	7291.7	283.0 ug/L	1.92	283.0 ug/L	1.92	0.68%
	QC value within limits for Cd 214.440	Recovery = 94.33%				
Co 228.616†	4785.3	293.1 ug/L	1.98	293.1 ug/L	1.98	0.68%
	QC value within limits for Co 228.616	Recovery = 97.69%				
Cr 267.716†	6475.9	296.9 ug/L	2.19	296.9 ug/L	2.19	0.74%
	QC value within limits for Cr 267.716	Recovery = 98.98%				
Cu 324.752†	57741.8	299.8 ug/L	2.41	299.8 ug/L	2.41	0.80%
	QC value within limits for Cu 324.752	Recovery = 99.94%				
Fe 238.204†	27332.3	227900 ug/L	781.3	227900 ug/L	781.3	0.34%
	QC value within limits for Fe 238.204	Recovery = 91.18%				
K 766.490†	37887.1	19850 ug/L	80.8	19850 ug/L	80.8	0.41%
	QC value within limits for K 766.490	Recovery = 99.27%				
Mg 285.213†	1085406.5	136600 ug/L	1948.3	136600 ug/L	1948.3	1.43%
	QC value within limits for Mg 285.213	Recovery = 91.05%				
Mn 257.610†	87084.5	189.5 ug/L	0.22	189.5 ug/L	0.22	0.12%
	QC value within limits for Mn 257.610	Recovery = 94.77%				
Mo 202.031†	531.1	282.8 ug/L	5.82	282.8 ug/L	5.82	2.06%
	QC value within limits for Mo 202.031	Recovery = 94.27%				
Na 589.592†	242182.1	48640 ug/L	683.7	48640 ug/L	683.7	1.41%
	QC value within limits for Na 589.592	Recovery = 97.29%				
Ni 231.604†	3582.0	288.0 ug/L	2.82	288.0 ug/L	2.82	0.98%
	QC value within limits for Ni 231.604	Recovery = 96.01%				
Pb 220.353†	1771.1	991.3 ug/L	5.76	991.3 ug/L	5.76	0.58%
	QC value within limits for Pb 220.353	Recovery = 99.13%				
Sb 206.836†	732.0	981.7 ug/L	46.44	981.7 ug/L	46.44	4.73%
	QC value within limits for Sb 206.836	Recovery = 98.17%				
Se 196.026†	160.2	490.8 ug/L	27.36	490.8 ug/L	27.36	5.58%
	QC value within limits for Se 196.026	Recovery = 98.16%				
SiO2 251.603†	5421.8	551.5 ug/L	1.75	551.5 ug/L	1.75	0.32%
	QC value within limits for SiO2 251.603	Recovery = 110.29%				
Sr 421.552†	3990993.9	1003 ug/L	1.9	1003 ug/L	1.9	0.19%
	QC value within limits for Sr 421.552	Recovery = 100.33%				
Ti 334.940†	424726.6	991.4 ug/L	1.12	991.4 ug/L	1.12	0.11%
	QC value within limits for Ti 334.940	Recovery = 99.14%				
Tl 190.801†	773.1	969.7 ug/L	12.81	969.7 ug/L	12.81	1.32%
	QC value within limits for Tl 190.801	Recovery = 96.97%				
V 290.880†	23316.7	274.2 ug/L	2.18	274.2 ug/L	2.18	0.79%
	QC value within limits for V 290.880	Recovery = 91.41%				

Zn 206.200†            2910.1            279.3 ug/L            2.32            279.3 ug/L            2.32    0.83%  
QC value within limits for Zn 206.200    Recovery = 93.12%  
All analyte(s) passed QC.

Sequence No.: 9

Sample ID: 1312039-BLK1

Analyst: S.VanOvermeiren

Initial Sample Wt:

Dilution:

Autosampler Location: 26

Date Collected: 12/10/2013 1:23:01 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Nebulizer Parameters: 1312039-BLK1

Analyte	Back Pressure	Flow
All	195.0 kPa	0.80 L/min

Mean Data: 1312039-BLK1

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3829382.5	98.63 %	0.326			0.33%
Sc Radial	416187.1	98.56 %	0.836			0.85%
Ag 328.068†	-29.7	-0.2331 ug/L	0.94142	-0.2331 ug/L	0.94142	403.87%
Al 396.153†	67.5	12.79 ug/L	10.856	12.79 ug/L	10.856	84.87%
As 193.696†	-2.0	-4.334 ug/L	2.2409	-4.334 ug/L	2.2409	51.70%
Ba 233.527†	3.4	0.0919 ug/L	0.24691	0.0919 ug/L	0.24691	268.66%
Be 313.107†	-284.0	-0.1864 ug/L	0.03687	-0.1864 ug/L	0.03687	19.78%
B 249.677†	39.5	1.744 ug/L	1.0129	1.744 ug/L	1.0129	58.07%
Ca 317.933†	49.4	5.952 ug/L	1.8540	5.952 ug/L	1.8540	31.15%
Cd 214.440†	-3.2	-0.1244 ug/L	0.10721	-0.1244 ug/L	0.10721	86.17%
Co 228.616†	1.4	0.0839 ug/L	0.21735	0.0839 ug/L	0.21735	258.96%
Cr 267.716†	4.6	0.2112 ug/L	0.24441	0.2112 ug/L	0.24441	115.75%
Cu 324.752†	530.3	2.410 ug/L	0.1651	2.410 ug/L	0.1651	6.85%
Fe 238.204†	8.1	67.56 ug/L	53.106	67.56 ug/L	53.106	78.61%
K 766.490†	133.6	70.38 ug/L	30.584	70.38 ug/L	30.584	43.46%
Mg 285.213†	35.5	4.470 ug/L	0.6413	4.470 ug/L	0.6413	14.35%
Mn 257.610†	-9.9	-0.0215 ug/L	0.01810	-0.0215 ug/L	0.01810	84.01%
Mo 202.031†	0.2	0.0911 ug/L	2.67449	0.0911 ug/L	2.67449	>999.9%
Na 589.592†	126.1	25.42 ug/L	9.571	25.42 ug/L	9.571	37.65%
Ni 231.604†	30.0	2.702 ug/L	1.9370	2.702 ug/L	1.9370	71.70%
Pb 220.353†	4.0	2.129 ug/L	2.5036	2.129 ug/L	2.5036	117.58%
Sb 206.836†	10.8	14.71 ug/L	6.727	14.71 ug/L	6.727	45.72%
Se 196.026†	-9.3	-26.12 ug/L	17.811	-26.12 ug/L	17.811	68.20%
SiO2 251.603†	221.0	21.78 ug/L	1.536	21.78 ug/L	1.536	7.05%
Sr 421.552†	854.6	0.214 ug/L	0.0967	0.214 ug/L	0.0967	45.17%
Ti 334.940†	69.8	0.163 ug/L	0.0359	0.163 ug/L	0.0359	22.03%
Tl 190.801†	4.3	5.561 ug/L	9.3392	5.561 ug/L	9.3392	167.94%
V 290.880†	177.8	2.319 ug/L	0.4808	2.319 ug/L	0.4808	20.73%
Zn 206.200†	-0.6	-0.056 ug/L	0.4880	-0.056 ug/L	0.4880	875.87%

Sequence No.: 10  
 Sample ID: 1312039-BS1  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution:

Autosampler Location: 27  
 Date Collected: 12/10/2013 1:26:04 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: 1312039-BS1

Analyte Back Pressure Flow  
 All 195.0 kPa 0.80 L/min

## Mean Data: 1312039-BS1

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3920316.8	101.0 %	0.26			0.26%
Sc Radial	428241.4	101.4 %	0.92			0.91%
Ag 328.068†	12411.7	100.3 ug/L	0.28	100.3 ug/L	0.28	0.28%
Al 396.153†	55444.5	10510 ug/L	241.5	10510 ug/L	241.5	2.30%
As 193.696†	35.1	95.88 ug/L	12.791	95.88 ug/L	12.791	13.34%
Ba 233.527†	3701.8	99.77 ug/L	0.550	99.77 ug/L	0.550	0.55%
Be 313.107†	153143.0	100.3 ug/L	0.42	100.3 ug/L	0.42	0.41%
B 249.677†	9.8	0.4326 ug/L	0.40957	0.4326 ug/L	0.40957	94.67%
Ca 317.933†	86753.5	10450 ug/L	219.7	10450 ug/L	219.7	2.10%
Cd 214.440†	2548.3	99.41 ug/L	0.229	99.41 ug/L	0.229	0.23%
Co 228.616†	1601.1	99.74 ug/L	0.939	99.74 ug/L	0.939	0.94%
Cr 267.716†	2226.3	101.8 ug/L	0.30	101.8 ug/L	0.30	0.30%
Cu 324.752†	20682.8	95.64 ug/L	0.729	95.64 ug/L	0.729	0.76%
Fe 238.204†	1232.9	10270 ug/L	43.7	10270 ug/L	43.7	0.43%
K 766.490†	19941.9	10510 ug/L	129.6	10510 ug/L	129.6	1.23%
Mg 285.213†	84671.6	10650 ug/L	245.3	10650 ug/L	245.3	2.30%
Mn 257.610†	44455.4	97.79 ug/L	0.307	97.79 ug/L	0.307	0.31%
Mo 202.031†	166.9	95.63 ug/L	4.430	95.63 ug/L	4.430	4.63%
Na 589.592†	51878.3	10430 ug/L	192.8	10430 ug/L	192.8	1.85%
Ni 231.604†	1122.8	100.4 ug/L	0.69	100.4 ug/L	0.69	0.68%
Pb 220.353†	188.4	99.41 ug/L	4.316	99.41 ug/L	4.316	4.34%
Sb 206.836†	64.5	84.67 ug/L	10.236	84.67 ug/L	10.236	12.09%
Se 196.026†	178.2	501.5 ug/L	6.44	501.5 ug/L	6.44	1.28%
SiO2 251.603†	105.9	-7.938 ug/L	0.0812	-7.938 ug/L	0.0812	1.02%
Sr 421.552†	2142521.3	546.5 ug/L	1.50	546.5 ug/L	1.50	0.27%
Ti 334.940†	-22.5	-0.052 ug/L	0.0725	-0.052 ug/L	0.0725	138.31%
Tl 190.801†	86.7	108.1 ug/L	7.69	108.1 ug/L	7.69	7.11%
V 290.880†	7549.8	96.28 ug/L	0.861	96.28 ug/L	0.861	0.89%
Zn 206.200†	1032.0	99.09 ug/L	0.813	99.09 ug/L	0.813	0.82%

## Matrix Recovery Check: 1312039-BS1

Analyte	Expected Conc.	Measured Conc.	Std. Dev.	Units	Recovery (%)
Al 396.153	10110	10510	241.510	ug/L	104.0
Ca 317.933	10110	10450	219.655	ug/L	103.4
Fe 238.204	10170	10270	43.709	ug/L	101.0
K 766.490	10170	10510	129.604	ug/L	103.4
Mg 285.213	10100	10650	245.325	ug/L	105.4
Na 589.592	10130	10430	192.809	ug/L	103.0
Ag 328.068	99.77	100.3	0.281	ug/L	100.5
As 193.696	95.67	95.88	12.791	ug/L	100.2
Ba 233.527	100.1	99.77	0.550	ug/L	99.7
Be 313.107	99.81	100.3	0.416	ug/L	100.4
Cd 214.440	99.88	99.41	0.229	ug/L	99.5
Co 228.616	100.1	99.74	0.939	ug/L	99.7
Cr 267.716	100.2	101.8	0.304	ug/L	101.6
Cu 324.752	102.4	95.64	0.729	ug/L	93.2
Mn 257.610	99.98	97.79	0.307	ug/L	97.8
Mo 202.031	100.1	95.63	4.430	ug/L	95.5
Ni 231.604	102.7	100.4	0.687	ug/L	97.7
Pb 220.353	102.1	99.41	4.316	ug/L	97.3
Sb 206.836	114.7	84.67	10.236	ug/L	70.0
Se 196.026	473.9	501.5	6.440	ug/L	105.5

SiO2 251.603	5022	-7.938	0.081	ug/L	-0.6
Sr 421.552	500.2	546.5	1.500	ug/L	109.3
Tl 190.801	105.6	108.1	7.692	ug/L	102.6
V 290.880	102.3	96.28	0.861	ug/L	94.0
Zn 206.200	99.94	99.09	0.813	ug/L	99.1



Sequence No.: 11  
 Sample ID: C131107-04  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution:

Autosampler Location: 28  
 Date Collected: 12/10/2013 1:29:07 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: C131107-04

Analyte	Back Pressure	Flow
All	194.0 kPa	0.80 L/min

## Mean Data: C131107-04

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3925035.7	101.1 %	0.52			0.51%
Sc Radial	421655.7	99.85 %	0.453			0.45%
Ag 328.068†	-31.8	0.3033 ug/L	0.49150	0.3033 ug/L	0.49150	162.06%
Al 396.153†	273.1	45.37 ug/L	2.494	45.37 ug/L	2.494	5.50%
As 193.696†	-9.5	-22.00 ug/L	4.688	-22.00 ug/L	4.688	21.31%
Ba 233.527†	2170.4	58.50 ug/L	0.226	58.50 ug/L	0.226	0.39%
Be 313.107†	21.9	-0.0513 ug/L	0.06779	-0.0513 ug/L	0.06779	132.03%
B 249.677†	-21.4	-0.9448 ug/L	0.58682	-0.9448 ug/L	0.58682	62.11%
Ca 317.933†	274015.9	33060 ug/L	223.9	33060 ug/L	223.9	0.68%
Cd 214.440†	-8.1	-0.2802 ug/L	0.12638	-0.2802 ug/L	0.12638	45.11%
Co 228.616†	-1.4	0.0531 ug/L	0.42628	0.0531 ug/L	0.42628	802.78%
Cr 267.716†	3.0	0.6005 ug/L	0.31093	0.6005 ug/L	0.31093	51.78%
Cu 324.752†	89.3	0.5531 ug/L	0.19079	0.5531 ug/L	0.19079	34.50%
Fe 238.204†	4.0	28.39 ug/L	18.533	28.39 ug/L	18.533	65.29%
K 766.490†	1200.3	629.7 ug/L	20.80	629.7 ug/L	20.80	3.30%
Mg 285.213†	44046.4	5539 ug/L	23.8	5539 ug/L	23.8	0.43%
Mn 257.610†	5352.5	11.60 ug/L	0.183	11.60 ug/L	0.183	1.57%
Mo 202.031†	9.7	5.234 ug/L	2.8378	5.234 ug/L	2.8378	54.22%
Na 589.592†	12453.8	2503 ug/L	15.5	2503 ug/L	15.5	0.62%
Ni 231.604†	14.7	1.316 ug/L	0.4015	1.316 ug/L	0.4015	30.50%
Pb 220.353†	1.6	0.8457 ug/L	3.73550	0.8457 ug/L	3.73550	441.73%
Sb 206.836†	-0.6	-2.700 ug/L	5.6156	-2.700 ug/L	5.6156	207.99%
Se 196.026†	-1.0	-4.826 ug/L	9.2013	-4.826 ug/L	9.2013	190.64%
SiO2 251.603†	56668.7	5582 ug/L	52.3	5582 ug/L	52.3	0.94%
Sr 421.552†	1168268.9	298.1 ug/L	0.42	298.1 ug/L	0.42	0.14%
Ti 334.940†	87.2	0.203 ug/L	0.1134	0.203 ug/L	0.1134	55.76%
Tl 190.801†	7.8	7.582 ug/L	6.7346	7.582 ug/L	6.7346	88.82%
V 290.880†	-6.3	-1.163 ug/L	0.2890	-1.163 ug/L	0.2890	24.84%
Zn 206.200†	11.6	0.633 ug/L	1.0666	0.633 ug/L	1.0666	168.39%

Sequence No.: 12  
 Sample ID: 1312039-DUP1  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution:

Autosampler Location: 29  
 Date Collected: 12/10/2013 1:32:11 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: 1312039-DUP1

Analyte Back Pressure Flow  
 All 195.0 kPa 0.80 L/min

## Mean Data: 1312039-DUP1

Analyte	Mean Corrected Intensity	Conc. Units	Calib	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3912416.4	100.8 %		1.01			1.00%
Sc Radial	429972.3	101.8 %		2.19			2.15%
Ag 328.068†	53.5	0.9714 ug/L		0.65486	0.9714 ug/L	0.65486	67.41%
Al 396.153†	311.4	52.68 ug/L		15.336	52.68 ug/L	15.336	29.11%
As 193.696†	-11.3	-26.24 ug/L		6.139	-26.24 ug/L	6.139	23.40%
Ba 233.527†	2185.5	58.92 ug/L		0.279	58.92 ug/L	0.279	0.47%
Be 313.107†	-26.6	-0.0826 ug/L		0.03786	-0.0826 ug/L	0.03786	45.83%
B 249.677†	-48.0	-2.120 ug/L		1.0039	-2.120 ug/L	1.0039	47.35%
Ca 317.933†	272440.2	32870 ug/L		1148.4	32870 ug/L	1148.4	3.49%
Cd 214.440†	-8.3	-0.2906 ug/L		0.11476	-0.2906 ug/L	0.11476	39.49%
Co 228.616†	2.6	0.3009 ug/L		0.57824	0.3009 ug/L	0.57824	192.17%
Cr 267.716†	-1.5	0.3909 ug/L		0.26536	0.3909 ug/L	0.26536	67.89%
Cu 324.752†	195.4	1.028 ug/L		0.4702	1.028 ug/L	0.4702	45.75%
Fe 238.204†	1.1	4.849 ug/L		32.3002	4.849 ug/L	32.3002	666.17%
K 766.490†	1103.9	578.9 ug/L		34.15	578.9 ug/L	34.15	5.90%
Mg 285.213†	43351.5	5452 ug/L		198.2	5452 ug/L	198.2	3.63%
Mn 257.610†	5360.5	11.62 ug/L		0.180	11.62 ug/L	0.180	1.55%
Mo 202.031†	7.0	3.707 ug/L		3.3287	3.707 ug/L	3.3287	89.80%
Na 589.592†	12197.9	2452 ug/L		99.8	2452 ug/L	99.8	4.07%
Ni 231.604†	10.4	0.9339 ug/L		1.00438	0.9339 ug/L	1.00438	107.54%
Pb 220.353†	-1.8	-0.9298 ug/L		1.47861	-0.9298 ug/L	1.47861	159.03%
Sb 206.836†	1.9	0.7353 ug/L		6.84360	0.7353 ug/L	6.84360	930.67%
Se 196.026†	-3.9	-12.94 ug/L		36.111	-12.94 ug/L	36.111	279.07%
SiO2 251.603†	56947.5	5610 ug/L		68.6	5610 ug/L	68.6	1.22%
Sr 421.552†	1156329.5	295.1 ug/L		2.75	295.1 ug/L	2.75	0.93%
Ti 334.940†	118.5	0.276 ug/L		0.1397	0.276 ug/L	0.1397	50.54%
Tl 190.801†	6.7	6.248 ug/L		4.9699	6.248 ug/L	4.9699	79.54%
V 290.880†	31.4	-0.667 ug/L		1.0691	-0.667 ug/L	1.0691	160.32%
Zn 206.200†	11.4	0.622 ug/L		0.4461	0.622 ug/L	0.4461	71.76%

## Duplicate Check: 1312039-DUP1

Analyte	Expected Conc.	Measured Conc.	Std. Dev.	Units	Difference (%)
Sc Radial	99.85	101.8	2.192	%	2.0
Al 396.153	45.37	52.68	15.336	ug/L	14.9
Ca 317.933	33060	32870	1148.379	ug/L	0.6
Fe 238.204	28.39	4.849	32.300	ug/L	141.6
K 766.490	629.7	578.9	34.152	ug/L	8.4
Mg 285.213	5539	5452	198.173	ug/L	1.6
Na 589.592	2503	2452	99.816	ug/L	2.1
Sc Axial	101.1	100.8	1.009	%	0.3
Ag 328.068	0.3033	0.9714	0.655	ug/L	104.8
As 193.696	-22.00	-26.24	6.139	ug/L	-17.6
Ba 233.527	58.50	58.92	0.279	ug/L	0.7
Be 313.107	-0.0513	-0.0826	0.038	ug/L	-46.7
B 249.677	-0.9448	-2.120	1.004	ug/L	-76.7
Cd 214.440	-0.2802	-0.2906	0.115	ug/L	-3.6
Co 228.616	0.0531	0.3009	0.578	ug/L	140.0
Cr 267.716	0.6005	0.3909	0.265	ug/L	42.3
Cu 324.752	0.5531	1.028	0.470	ug/L	60.1
Mn 257.610	11.60	11.62	0.180	ug/L	0.2
Mo 202.031	5.234	3.707	3.329	ug/L	34.2
Ni 231.604	1.316	0.9339	1.004	ug/L	34.0

Pb 220.353	0.8457	-0.9298	1.479	ug/L	-4222.6
Sb 206.836	-2.700	0.7353	6.844	ug/L	-349.7
Se 196.026	-4.826	-12.94	36.111	ug/L	-91.3
SiO2 251.603	5582	5610	68.553	ug/L	0.5
Sr 421.552	298.1	295.1	2.753	ug/L	1.0
Ti 334.940	0.203	0.276	0.140	ug/L	30.4
Tl 190.801	7.582	6.248	4.970	ug/L	19.3
V 290.880	-1.163	-0.667	1.069	ug/L	-54.3
Zn 206.200	0.633	0.622	0.446	ug/L	1.9

Sequence No.: 13  
 Sample ID: SEQ-SRD1 @5X  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution: 5X

Autosampler Location: 30  
 Date Collected: 12/10/2013 1:35:13 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: SEQ-SRD1 @5X

Analyte Back Pressure Flow  
 All 194.0 kPa 0.80 L/min

## Mean Data: SEQ-SRD1 @5X

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3881026.7	99.96 %	0.303			0.30%
Sc Radial	414876.6	98.25 %	1.466			1.49%
Ag 328.068†	-107.0	-0.7425 ug/L	1.20486	-3.712 ug/L	6.0243	162.28%
Al 396.153†	105.8	18.69 ug/L	12.466	93.46 ug/L	62.329	66.69%
As 193.696†	4.2	9.363 ug/L	10.5237	46.82 ug/L	52.619	112.39%
Ba 233.527†	439.1	11.84 ug/L	0.193	59.21 ug/L	0.965	1.63%
Be 313.107†	-77.3	-0.0639 ug/L	0.01996	-0.3197 ug/L	0.09979	31.22%
B 249.677†	-20.4	-0.9014 ug/L	0.56556	-4.507 ug/L	2.8278	62.74%
Ca 317.933†	55389.3	6683 ug/L	77.1	33420 ug/L	385.5	1.15%
Cd 214.440†	-7.0	-0.2686 ug/L	0.05473	-1.343 ug/L	0.2737	20.38%
Co 228.616†	-3.9	-0.2165 ug/L	0.44642	-1.083 ug/L	2.2321	206.19%
Cr 267.716†	2.7	0.2189 ug/L	0.50594	1.095 ug/L	2.5297	231.08%
Cu 324.752†	235.3	1.092 ug/L	0.5676	5.458 ug/L	2.8381	52.00%
Fe 238.204†	2.0	15.43 ug/L	17.928	77.16 ug/L	89.641	116.17%
K 766.490†	313.0	164.3 ug/L	19.97	821.5 ug/L	99.85	12.15%
Mg 285.213†	8885.7	1118 ug/L	15.9	5588 ug/L	79.7	1.43%
Mn 257.610†	1071.6	2.323 ug/L	0.0347	11.62 ug/L	0.174	1.49%
Mo 202.031†	2.9	1.619 ug/L	1.0396	8.093 ug/L	5.1981	64.23%
Na 589.592†	2493.8	501.3 ug/L	7.73	2507 ug/L	38.6	1.54%
Ni 231.604†	12.8	1.157 ug/L	0.4481	5.783 ug/L	2.2403	38.74%
Pb 220.353†	8.7	4.584 ug/L	4.2083	22.92 ug/L	21.042	91.81%
Sb 206.836†	4.5	5.772 ug/L	2.0772	28.86 ug/L	10.386	35.99%
Se 196.026†	-11.9	-33.69 ug/L	18.103	-168.5 ug/L	90.51	53.73%
SiO2 251.603†	11378.4	1121 ug/L	5.1	5604 ug/L	25.5	0.45%
Sr 421.552†	233810.7	59.67 ug/L	0.048	298.3 ug/L	0.24	0.08%
Ti 334.940†	9.0	0.021 ug/L	0.0683	0.105 ug/L	0.3413	323.59%
Tl 190.801†	2.5	2.829 ug/L	10.6866	14.14 ug/L	53.433	377.79%
V 290.880†	127.2	1.457 ug/L	0.2760	7.287 ug/L	1.3800	18.94%
Zn 206.200†	3.1	0.205 ug/L	0.7390	1.025 ug/L	3.6950	360.55%

## Dilution Check: SEQ-SRD1 @5X

Analyte	Expected Conc.	Measured Conc.	Std. Dev.	Units	Difference (%)
Sc Radial	19.97	98.25	1.466	%	392.0
Al 396.153	9.073	18.69	12.466	ug/L	106.0
Ca 317.933	6612	6683	77.110	ug/L	1.1
Fe 238.204	5.677	15.43	17.928	ug/L	171.8
K 766.490	125.9	164.3	19.970	ug/L	30.5
Mg 285.213	1108	1118	15.937	ug/L	0.9
Na 589.592	500.7	501.3	7.725	ug/L	0.1
Sc Axial	20.22	99.96	0.303	%	394.4
Ag 328.068	0.0607	-0.7425	1.205	ug/L	1324.1
As 193.696	-4.401	9.363	10.524	ug/L	-312.8
Ba 233.527	11.70	11.84	0.193	ug/L	1.2
Be 313.107	-0.0103	-0.0639	0.020	ug/L	-522.5
B 249.677	-0.1890	-0.9014	0.566	ug/L	-377.0
Cd 214.440	-0.0560	-0.2686	0.055	ug/L	-379.3
Co 228.616	0.0106	-0.2165	0.446	ug/L	2138.7
Cr 267.716	0.1201	0.2189	0.506	ug/L	82.3
Cu 324.752	0.1106	1.092	0.568	ug/L	886.8
Mn 257.610	2.320	2.323	0.035	ug/L	0.1
Mo 202.031	1.047	1.619	1.040	ug/L	54.6
Ni 231.604	0.2633	1.157	0.448	ug/L	339.3

Pb 220.353	0.1691	4.584	4.208	ug/L	2610.0
Sb 206.836	-0.5400	5.772	2.077	ug/L	-1168.9
Se 196.026	-0.9653	-33.69	18.103	ug/L	-3390.4
SiO2 251.603	1116	1121	5.091	ug/L	0.4
Sr 421.552	59.63	59.67	0.048	ug/L	0.1
Ti 334.940	0.041	0.021	0.068	ug/L	48.2
Tl 190.801	1.516	2.829	10.687	ug/L	86.5
V 290.880	-0.233	1.457	0.276	ug/L	-726.3
Zn 206.200	0.127	0.205	0.739	ug/L	61.8

Sequence No.: 14  
 Sample ID: 1312039-MS1  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution:

Autosampler Location: 31  
 Date Collected: 12/10/2013 1:38:16 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: 1312039-MS1

Analyte Back Pressure Flow  
 All 195.0 kPa 0.80 L/min

## Mean Data: 1312039-MS1

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3946346.8	101.6 %	1.57			1.54%
Sc Radial	425717.0	100.8 %	0.38			0.37%
Ag 328.068†	12244.7	99.48 ug/L	2.426	99.48 ug/L	2.426	2.44%
Al 396.153†	56774.3	10760 ug/L	76.2	10760 ug/L	76.2	0.71%
As 193.696†	11.5	42.45 ug/L	3.089	42.45 ug/L	3.089	7.28%
Ba 233.527†	5720.5	154.2 ug/L	3.57	154.2 ug/L	3.57	2.31%
Be 313.107†	152405.9	99.71 ug/L	2.220	99.71 ug/L	2.220	2.23%
B 249.677†	-102.6	-4.533 ug/L	1.8378	-4.533 ug/L	1.8378	40.54%
Ca 317.933†	356696.6	43020 ug/L	245.9	43020 ug/L	245.9	0.57%
Cd 214.440†	2496.4	97.42 ug/L	1.140	97.42 ug/L	1.140	1.17%
Co 228.616†	1575.1	98.25 ug/L	1.437	98.25 ug/L	1.437	1.46%
Cr 267.716†	2204.0	101.2 ug/L	1.60	101.2 ug/L	1.60	1.58%
Cu 324.752†	20416.2	94.60 ug/L	3.004	94.60 ug/L	3.004	3.17%
Fe 238.204†	1260.2	10500 ug/L	130.1	10500 ug/L	130.1	1.24%
K 766.490†	21485.1	11320 ug/L	128.4	11320 ug/L	128.4	1.13%
Mg 285.213†	127871.9	16080 ug/L	90.2	16080 ug/L	90.2	0.56%
Mn 257.610†	48816.2	107.2 ug/L	2.62	107.2 ug/L	2.62	2.45%
Mo 202.031†	171.4	97.84 ug/L	1.746	97.84 ug/L	1.746	1.78%
Na 589.592†	64612.4	12990 ug/L	115.3	12990 ug/L	115.3	0.89%
Ni 231.604†	1112.2	99.40 ug/L	1.171	99.40 ug/L	1.171	1.18%
Pb 220.353†	181.7	96.03 ug/L	1.919	96.03 ug/L	1.919	2.00%
Sb 206.836†	56.6	72.10 ug/L	3.881	72.10 ug/L	3.881	5.38%
Se 196.026†	184.6	517.4 ug/L	37.87	517.4 ug/L	37.87	7.32%
SiO2 251.603†	54970.5	5397 ug/L	125.8	5397 ug/L	125.8	2.33%
Sr 421.552†	3214340.9	820.0 ug/L	15.38	820.0 ug/L	15.38	1.88%
Ti 334.940†	7.4	0.017 ug/L	0.1020	0.017 ug/L	0.1020	589.34%
Tl 190.801†	85.8	104.8 ug/L	3.19	104.8 ug/L	3.19	3.04%
V 290.880†	7426.5	93.58 ug/L	3.245	93.58 ug/L	3.245	3.47%
Zn 206.200†	1025.7	98.03 ug/L	1.497	98.03 ug/L	1.497	1.53%

## Matrix Recovery Check: 1312039-MS1

Analyte	Expected Conc.	Measured Conc.	Std. Dev.	Units	Recovery (%)
Al 396.153	10150	10760	76.212	ug/L	106.1
Ca 317.933	43160	43020	245.933	ug/L	98.6
Fe 238.204	10130	10500	130.065	ug/L	103.6
K 766.490	10730	11320	128.379	ug/L	105.9
Mg 285.213	15640	16080	90.164	ug/L	104.4
Na 589.592	12600	12990	115.322	ug/L	103.8
Ag 328.068	100.3	99.48	2.426	ug/L	99.2
As 193.696	78.00	42.45	3.089	ug/L	64.4
Ba 233.527	158.5	154.2	3.569	ug/L	95.7
Be 313.107	99.95	99.71	2.220	ug/L	99.8
Cd 214.440	99.72	97.42	1.140	ug/L	97.7
Co 228.616	100.1	98.25	1.437	ug/L	98.2
Cr 267.716	100.6	101.2	1.603	ug/L	100.6
Cu 324.752	100.6	94.60	3.004	ug/L	94.1
Mn 257.610	111.6	107.2	2.622	ug/L	95.6
Mo 202.031	105.2	97.84	1.746	ug/L	92.6
Ni 231.604	101.3	99.40	1.171	ug/L	98.1
Pb 220.353	100.8	96.03	1.919	ug/L	95.2
Sb 206.836	97.30	72.10	3.881	ug/L	74.8
Se 196.026	495.2	517.4	37.875	ug/L	104.4

SiO2 251.603	10580	5397	125.803	ug/L	-3.7
Sr 421.552	798.1	820.0	15.379	ug/L	104.4
Tl 190.801	107.6	104.8	3.189	ug/L	97.2
V 290.880	98.84	93.58	3.245	ug/L	94.7
Zn 206.200	100.6	98.03	1.497	ug/L	97.4

Sequence No.: 15  
 Sample ID: C131107-07  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution:

Autosampler Location: 32  
 Date Collected: 12/10/2013 1:41:28 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: C131107-07

Analyte Back Pressure Flow  
 All 196.0 kPa 0.80 L/min

## Mean Data: C131107-07

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3909572.0	100.7 %	0.90			0.89%
Sc Radial	431333.6	102.1 %	2.25			2.20%
Ag 328.068†	-43.7	0.3018 ug/L	0.31042	0.3018 ug/L	0.31042	102.85%
Al 396.153†	229.0	36.77 ug/L	5.505	36.77 ug/L	5.505	14.97%
As 193.696†	-9.0	-21.10 ug/L	5.797	-21.10 ug/L	5.797	27.47%
Ba 233.527†	2282.7	61.47 ug/L	0.489	61.47 ug/L	0.489	0.80%
Be 313.107†	61.2	-0.0359 ug/L	0.01138	-0.0359 ug/L	0.01138	31.68%
B 249.677†	-89.8	-3.966 ug/L	1.1131	-3.966 ug/L	1.1131	28.06%
Ca 317.933†	315525.1	38070 ug/L	1376.4	38070 ug/L	1376.4	3.62%
Cd 214.440†	-7.1	-0.2394 ug/L	0.06219	-0.2394 ug/L	0.06219	25.97%
Co 228.616†	0.4	0.1811 ug/L	0.18489	0.1811 ug/L	0.18489	102.08%
Cr 267.716†	7.2	0.8393 ug/L	0.48276	0.8393 ug/L	0.48276	57.52%
Cu 324.752†	145.1	0.8263 ug/L	0.32911	0.8263 ug/L	0.32911	39.83%
Fe 238.204†	2.2	12.83 ug/L	18.123	12.83 ug/L	18.123	141.24%
K 766.490†	1275.9	665.8 ug/L	19.78	665.8 ug/L	19.78	2.97%
Mg 285.213†	46844.0	5891 ug/L	208.2	5891 ug/L	208.2	3.53%
Mn 257.610†	26108.9	57.42 ug/L	0.773	57.42 ug/L	0.773	1.35%
Mo 202.031†	6.0	3.112 ug/L	1.1395	3.112 ug/L	1.1395	36.62%
Na 589.592†	13395.5	2692 ug/L	89.6	2692 ug/L	89.6	3.33%
Ni 231.604†	7.4	0.6572 ug/L	0.26914	0.6572 ug/L	0.26914	40.95%
Pb 220.353†	4.1	2.127 ug/L	1.9622	2.127 ug/L	1.9622	92.26%
Sb 206.836†	0.0	-2.212 ug/L	4.5732	-2.212 ug/L	4.5732	206.74%
Se 196.026†	-1.1	-5.224 ug/L	31.8908	-5.224 ug/L	31.8908	610.43%
SiO2 251.603†	60058.1	5916 ug/L	70.6	5916 ug/L	70.6	1.19%
Sr 421.552†	1419466.0	362.3 ug/L	1.41	362.3 ug/L	1.41	0.39%
Ti 334.940†	-26.9	-0.063 ug/L	0.0388	-0.063 ug/L	0.0388	61.87%
Tl 190.801†	2.2	0.193 ug/L	1.3052	0.193 ug/L	1.3052	675.09%
V 290.880†	-3.9	-1.347 ug/L	0.5068	-1.347 ug/L	0.5068	37.62%
Zn 206.200†	34.4	2.779 ug/L	1.1756	2.779 ug/L	1.1756	42.30%



Sequence No.: 16  
 Sample ID: 1312039-MS2  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution:

Autosampler Location: 33  
 Date Collected: 12/10/2013 1:44:32 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: 1312039-MS2

Analyte Back Pressure Flow  
 All 194.0 kPa 0.80 L/min

## Mean Data: 1312039-MS2

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3815888.8	98.29 %	0.857			0.87%
Sc Radial	424559.8	100.5 %	1.95			1.94%
Ag 328.068†	12464.9	101.3 ug/L	0.99	101.3 ug/L	0.99	0.98%
Al 396.153†	55409.1	10500 ug/L	410.7	10500 ug/L	410.7	3.91%
As 193.696†	6.0	29.51 ug/L	5.898	29.51 ug/L	5.898	19.99%
Ba 233.527†	5958.0	160.5 ug/L	1.16	160.5 ug/L	1.16	0.72%
Be 313.107†	154770.2	101.2 ug/L	0.25	101.2 ug/L	0.25	0.24%
B 249.677†	-241.8	-10.68 ug/L	0.969	-10.68 ug/L	0.969	9.07%
Ca 317.933†	391253.5	47190 ug/L	1706.2	47190 ug/L	1706.2	3.62%
Cd 214.440†	2552.6	99.62 ug/L	0.752	99.62 ug/L	0.752	0.75%
Co 228.616†	1605.2	100.2 ug/L	1.96	100.2 ug/L	1.96	1.96%
Cr 267.716†	2236.6	102.7 ug/L	1.81	102.7 ug/L	1.81	1.76%
Cu 324.752†	21232.7	98.29 ug/L	0.800	98.29 ug/L	0.800	0.81%
Fe 238.204†	1225.6	10210 ug/L	224.1	10210 ug/L	224.1	2.20%
K 766.490†	21187.0	11160 ug/L	361.3	11160 ug/L	361.3	3.24%
Mg 285.213†	129018.4	16230 ug/L	596.0	16230 ug/L	596.0	3.67%
Mn 257.610†	70128.8	154.3 ug/L	1.41	154.3 ug/L	1.41	0.91%
Mo 202.031†	174.2	99.48 ug/L	3.521	99.48 ug/L	3.521	3.54%
Na 589.592†	64757.0	13020 ug/L	434.8	13020 ug/L	434.8	3.34%
Ni 231.604†	1152.8	103.1 ug/L	2.27	103.1 ug/L	2.27	2.20%
Pb 220.353†	179.4	94.62 ug/L	3.493	94.62 ug/L	3.493	3.69%
Sb 206.836†	63.3	80.80 ug/L	3.422	80.80 ug/L	3.422	4.24%
Se 196.026†	195.9	548.9 ug/L	11.82	548.9 ug/L	11.82	2.15%
SiO2 251.603†	60078.8	5899 ug/L	55.3	5899 ug/L	55.3	0.94%
Sr 421.552†	3514301.8	896.6 ug/L	4.58	896.6 ug/L	4.58	0.51%
Ti 334.940†	-40.7	-0.095 ug/L	0.0370	-0.095 ug/L	0.0370	38.98%
Tl 190.801†	84.6	102.9 ug/L	9.67	102.9 ug/L	9.67	9.40%
V 290.880†	7737.8	97.48 ug/L	1.000	97.48 ug/L	1.000	1.03%
Zn 206.200†	1074.9	102.7 ug/L	0.59	102.7 ug/L	0.59	0.57%

## Matrix Recovery Check: 1312039-MS2

Analyte	Expected Conc.	Measured Conc.	Std. Dev.	Units	Recovery (%)
Al 396.153	10140	10500	410.718	ug/L	103.6
Ca 317.933	48170	47190	1706.187	ug/L	90.3
Fe 238.204	10110	10210	224.052	ug/L	100.9
K 766.490	10770	11160	361.285	ug/L	103.9
Mg 285.213	15990	16230	596.044	ug/L	102.3
Na 589.592	12790	13020	434.751	ug/L	102.2
Ag 328.068	100.3	101.3	0.990	ug/L	101.0
As 193.696	78.90	29.51	5.898	ug/L	50.6
Ba 233.527	161.5	160.5	1.158	ug/L	99.1
Be 313.107	99.96	101.2	0.247	ug/L	101.3
Cd 214.440	99.76	99.62	0.752	ug/L	99.9
Co 228.616	100.2	100.2	1.959	ug/L	100.0
Cr 267.716	100.8	102.7	1.805	ug/L	101.9
Cu 324.752	100.8	98.29	0.800	ug/L	97.5
Mn 257.610	157.4	154.3	1.407	ug/L	96.8
Mo 202.031	103.1	99.48	3.521	ug/L	96.4
Ni 231.604	100.7	103.1	2.271	ug/L	102.5
Pb 220.353	102.1	94.62	3.493	ug/L	92.5
Sb 206.836	97.79	80.80	3.422	ug/L	83.0
Se 196.026	494.8	548.9	11.818	ug/L	110.8

SiO2 251.603	10920	5899	55.266	ug/L	-0.3
Sr 421.552	862.3	896.6	4.580	ug/L	106.9
Tl 190.801	100.2	102.9	9.667	ug/L	102.7
V 290.880	98.65	97.48	1.000	ug/L	98.8
Zn 206.200	102.8	102.7	0.588	ug/L	99.9

Sequence No.: 17  
 Sample ID: C131107-01 @10X  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution: 10X

Autosampler Location: 34  
 Date Collected: 12/10/2013 1:47:45 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: C131107-01 @10X

Analyte Back Pressure Flow  
 All 195.0 kPa 0.80 L/min

## Mean Data: C131107-01 @10X

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3823351.7	98.48 %	0.853			0.87%
Sc Radial	411509.6	97.45 %	1.434			1.47%
Ag 328.068†	-146.6	-0.6001 ug/L	1.03706	-6.001 ug/L	10.3706	172.83%
Al 396.153†	178.5	32.48 ug/L	8.300	324.8 ug/L	83.00	25.55%
As 193.696†	-4.6	-10.94 ug/L	8.098	-109.4 ug/L	80.98	74.02%
Ba 233.527†	207.5	5.166 ug/L	0.1061	51.66 ug/L	1.061	2.05%
Be 313.107†	-135.5	-0.1427 ug/L	0.06700	-1.427 ug/L	0.6700	46.97%
B 249.677†	-188.7	-8.334 ug/L	1.1205	-83.34 ug/L	11.205	13.44%
Ca 317.933†	209078.3	25230 ug/L	293.4	252300 ug/L	2933.8	1.16%
Cd 214.440†	-6.1	-0.2273 ug/L	0.13735	-2.273 ug/L	1.3735	60.42%
Co 228.616†	-7.1	-0.3582 ug/L	0.69787	-3.582 ug/L	6.9787	194.84%
Cr 267.716†	8.9	0.7490 ug/L	0.42592	7.490 ug/L	4.2592	56.86%
Cu 324.752†	359.1	1.759 ug/L	0.0410	17.59 ug/L	0.410	2.33%
Fe 238.204†	3.8	28.28 ug/L	19.622	282.8 ug/L	196.22	69.38%
K 766.490†	1307.4	669.7 ug/L	38.40	6697 ug/L	384.0	5.73%
Mg 285.213†	16136.6	2029 ug/L	28.6	20290 ug/L	285.9	1.41%
Mn 257.610†	36698.6	80.92 ug/L	0.088	809.2 ug/L	0.88	0.11%
Mo 202.031†	9.1	5.179 ug/L	1.7123	51.79 ug/L	17.123	33.07%
Na 589.592†	7176.9	1440 ug/L	11.1	14400 ug/L	110.7	0.77%
Ni 231.604†	35.9	3.270 ug/L	1.1823	32.70 ug/L	11.823	36.16%
Pb 220.353†	-1.5	-0.8990 ug/L	3.61213	-8.990 ug/L	36.1213	401.80%
Sb 206.836†	7.2	8.379 ug/L	3.4689	83.79 ug/L	34.689	41.40%
Se 196.026†	3.9	10.31 ug/L	11.491	103.1 ug/L	114.91	111.43%
SiO2 251.603†	14231.9	1398 ug/L	8.4	13980 ug/L	84.4	0.60%
Sr 421.552†	1352784.2	345.4 ug/L	0.40	3454 ug/L	4.0	0.12%
Ti 334.940†	66.4	0.155 ug/L	0.0623	1.549 ug/L	0.6229	40.22%
Tl 190.801†	0.3	-1.183 ug/L	6.5351	-11.83 ug/L	65.351	552.47%
V 290.880†	214.1	1.749 ug/L	0.6048	17.49 ug/L	6.048	34.58%
Zn 206.200†	-0.6	-0.544 ug/L	0.3237	-5.443 ug/L	3.2372	59.47%

Sequence No.: 18  
 Sample ID: Blank  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution:

Autosampler Location: 35  
 Date Collected: 12/10/2013 1:50:49 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: Blank

Analyte Back Pressure Flow  
 All 196.0 kPa 0.80 L/min

## Mean Data: Blank

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3826280.2	98.55 %	0.894			0.91%
Sc Radial	409992.2	97.09 %	1.721			1.77%
Ag 328.068†	17.2	0.1349 ug/L	0.19082	0.1349 ug/L	0.19082	141.48%
Al 396.153†	25.4	4.767 ug/L	6.2059	4.767 ug/L	6.2059	130.17%
As 193.696†	3.7	8.439 ug/L	10.1999	8.439 ug/L	10.1999	120.86%
Ba 233.527†	2.2	0.0643 ug/L	0.12157	0.0643 ug/L	0.12157	189.14%
Be 313.107†	34.1	0.0223 ug/L	0.01936	0.0223 ug/L	0.01936	86.63%
B 249.677†	-26.0	-1.148 ug/L	0.8440	-1.148 ug/L	0.8440	73.53%
Ca 317.933†	54.0	6.531 ug/L	0.9645	6.531 ug/L	0.9645	14.77%
Cd 214.440†	-4.4	-0.1736 ug/L	0.14335	-0.1736 ug/L	0.14335	82.56%
Co 228.616†	3.3	0.2035 ug/L	0.22761	0.2035 ug/L	0.22761	111.83%
Cr 267.716†	-0.4	-0.0159 ug/L	0.04634	-0.0159 ug/L	0.04634	290.96%
Cu 324.752†	9.6	0.0422 ug/L	0.18914	0.0422 ug/L	0.18914	448.20%
Fe 238.204†	1.4	11.70 ug/L	46.792	11.70 ug/L	46.792	399.89%
K 766.490†	34.9	18.36 ug/L	42.510	18.36 ug/L	42.510	231.55%
Mg 285.213†	1.0	0.1350 ug/L	1.61961	0.1350 ug/L	1.61961	>999.9%
Mn 257.610†	-16.0	-0.0343 ug/L	0.03929	-0.0343 ug/L	0.03929	114.42%
Mo 202.031†	0.4	0.2236 ug/L	0.87456	0.2236 ug/L	0.87456	391.14%
Na 589.592†	41.6	8.424 ug/L	3.0675	8.424 ug/L	3.0675	36.42%
Ni 231.604†	18.5	1.673 ug/L	0.7741	1.673 ug/L	0.7741	46.28%
Pb 220.353†	2.1	1.141 ug/L	1.1403	1.141 ug/L	1.1403	99.90%
Sb 206.836†	-2.1	-2.840 ug/L	3.6598	-2.840 ug/L	3.6598	128.86%
Se 196.026†	-8.1	-22.85 ug/L	13.968	-22.85 ug/L	13.968	61.13%
SiO2 251.603†	203.8	19.96 ug/L	0.573	19.96 ug/L	0.573	2.87%
Sr 421.552†	1243.2	0.317 ug/L	0.1064	0.317 ug/L	0.1064	33.57%
Ti 334.940†	20.3	0.047 ug/L	0.0615	0.047 ug/L	0.0615	129.94%
Tl 190.801†	4.6	5.895 ug/L	7.1933	5.895 ug/L	7.1933	122.02%
V 290.880†	28.8	0.382 ug/L	0.7151	0.382 ug/L	0.7151	187.37%
Zn 206.200†	-2.9	-0.281 ug/L	0.5648	-0.281 ug/L	0.5648	200.97%

Sequence No.: 19  
 Sample ID: SEQ-CCV  
 Analyst:  
 Initial Sample Wt:  
 Dilution:

Autosampler Location: 3  
 Date Collected: 12/10/2013 1:53:54 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: SEQ-CCV

Analyte Back Pressure Flow  
 All 194.0 kPa 0.80 L/min

## Mean Data: SEQ-CCV

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3864866.9	99.55 %	0.755			0.76%
Sc Radial	417834.6	98.95 %	0.221			0.22%
Ag 328.068†	31915.3	257.3 ug/L	4.68	257.3 ug/L	4.68	1.82%
QC value within limits for Ag 328.068 Recovery = 102.94%						
Al 396.153†	67058.2	12700 ug/L	171.4	12700 ug/L	171.4	1.35%
QC value within limits for Al 396.153 Recovery = 101.64%						
As 193.696†	1132.2	2587 ug/L	11.0	2587 ug/L	11.0	0.42%
QC value within limits for As 193.696 Recovery = 103.48%						
Ba 233.527†	18900.7	511.5 ug/L	8.45	511.5 ug/L	8.45	1.65%
QC value within limits for Ba 233.527 Recovery = 102.31%						
Be 313.107†	785826.0	514.6 ug/L	2.92	514.6 ug/L	2.92	0.57%
QC value within limits for Be 313.107 Recovery = 102.92%						
B 249.677†	116215.0	5133 ug/L	103.0	5133 ug/L	103.0	2.01%
QC value within limits for B 249.677 Recovery = 102.67%						
Ca 317.933†	105220.0	12640 ug/L	153.5	12640 ug/L	153.5	1.22%
QC value within limits for Ca 317.933 Recovery = 101.08%						
Cd 214.440†	13261.8	517.6 ug/L	8.91	517.6 ug/L	8.91	1.72%
QC value within limits for Cd 214.440 Recovery = 103.52%						
Co 228.616†	8317.7	518.7 ug/L	8.32	518.7 ug/L	8.32	1.60%
QC value within limits for Co 228.616 Recovery = 103.75%						
Cr 267.716†	57016.0	2595 ug/L	45.3	2595 ug/L	45.3	1.75%
QC value within limits for Cr 267.716 Recovery = 103.79%						
Cu 324.752†	222101.3	1009 ug/L	20.2	1009 ug/L	20.2	2.00%
QC value within limits for Cu 324.752 Recovery = 100.86%						
Fe 238.204†	1502.7	12510 ug/L	87.9	12510 ug/L	87.9	0.70%
QC value within limits for Fe 238.204 Recovery = 100.05%						
K 766.490†	47157.5	24850 ug/L	212.0	24850 ug/L	212.0	0.85%
QC value within limits for K 766.490 Recovery = 99.41%						
Mg 285.213†	101868.0	12800 ug/L	152.5	12800 ug/L	152.5	1.19%
QC value within limits for Mg 285.213 Recovery = 102.44%						
Mn 257.610†	467370.0	1031 ug/L	1.9	1031 ug/L	1.9	0.18%
QC value within limits for Mn 257.610 Recovery = 103.11%						
Mo 202.031†	874.3	502.2 ug/L	3.47	502.2 ug/L	3.47	0.69%
QC value within limits for Mo 202.031 Recovery = 100.44%						
Na 589.592†	62668.3	12520 ug/L	92.0	12520 ug/L	92.0	0.73%
QC value within limits for Na 589.592 Recovery = 100.13%						
Ni 231.604†	28565.6	2585 ug/L	46.7	2585 ug/L	46.7	1.81%
QC value within limits for Ni 231.604 Recovery = 103.39%						
Pb 220.353†	4877.3	2552 ug/L	25.9	2552 ug/L	25.9	1.01%
QC value within limits for Pb 220.353 Recovery = 102.10%						
Sb 206.836†	1869.3	2504 ug/L	34.9	2504 ug/L	34.9	1.39%
QC value within limits for Sb 206.836 Recovery = 100.15%						
Se 196.026†	911.7	2561 ug/L	10.2	2561 ug/L	10.2	0.40%
QC value within limits for Se 196.026 Recovery = 102.42%						
SiO2 251.603†	104267.8	10260 ug/L	188.8	10260 ug/L	188.8	1.84%
QC value within limits for SiO2 251.603 Recovery = 102.61%						
Sr 421.552†	2033287.3	518.1 ug/L	1.56	518.1 ug/L	1.56	0.30%
QC value within limits for Sr 421.552 Recovery = 103.63%						
Ti 334.940†	220434.5	514.5 ug/L	9.04	514.5 ug/L	9.04	1.76%
QC value within limits for Ti 334.940 Recovery = 102.91%						
Tl 190.801†	2029.3	2583 ug/L	15.2	2583 ug/L	15.2	0.59%
QC value within limits for Tl 190.801 Recovery = 103.32%						
V 290.880†	78794.2	1030 ug/L	18.9	1030 ug/L	18.9	1.84%
QC value within limits for V 290.880 Recovery = 102.97%						

Zn 206.200†	26458.3	2586 ug/L	43.0	2586 ug/L	43.0	1.66%
-------------	---------	-----------	------	-----------	------	-------

QC value within limits for Zn 206.200 Recovery = 103.44%

All analyte(s) passed QC.

Sequence No.: 20  
 Sample ID: SEQ-CCB  
 Analyst:  
 Initial Sample Wt:  
 Dilution:

Autosampler Location: 1  
 Date Collected: 12/10/2013 1:57:01 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: SEQ-CCB

Analyte	Back Pressure	Flow
All	196.0 kPa	0.80 L/min

## Mean Data: SEQ-CCB

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3734141.9	96.18 %	0.588			0.61%
Sc Radial	406501.3	96.27 %	0.151			0.16%
Ag 328.068†	-239.9	-1.899 ug/L	0.9517	-1.899 ug/L	0.9517	50.12%
QC value within limits for Ag 328.068		Recovery = Not calculated				
Al 396.153†	90.9	17.24 ug/L	8.962	17.24 ug/L	8.962	51.97%
QC value within limits for Al 396.153		Recovery = Not calculated				
As 193.696†	0.1	0.4019 ug/L	8.79832	0.4019 ug/L	8.79832	>999.9%
QC value within limits for As 193.696		Recovery = Not calculated				
Ba 233.527†	5.4	0.1407 ug/L	0.04109	0.1407 ug/L	0.04109	29.21%
QC value within limits for Ba 233.527		Recovery = Not calculated				
Be 313.107†	-713.5	-0.4680 ug/L	0.03046	-0.4680 ug/L	0.03046	6.51%
QC value within limits for Be 313.107		Recovery = Not calculated				
B 249.677†	118.6	5.238 ug/L	1.9945	5.238 ug/L	1.9945	38.08%
QC value within limits for B 249.677		Recovery = Not calculated				
Ca 317.933†	0.4	-0.0465 ug/L	1.22719	-0.0465 ug/L	1.22719	>999.9%
QC value within limits for Ca 317.933		Recovery = Not calculated				
Cd 214.440†	-4.3	-0.1691 ug/L	0.02526	-0.1691 ug/L	0.02526	14.94%
QC value within limits for Cd 214.440		Recovery = Not calculated				
Co 228.616†	-5.6	-0.3517 ug/L	0.54384	-0.3517 ug/L	0.54384	154.63%
QC value within limits for Co 228.616		Recovery = Not calculated				
Cr 267.716†	3.1	0.1455 ug/L	0.09992	0.1455 ug/L	0.09992	68.68%
QC value within limits for Cr 267.716		Recovery = Not calculated				
Cu 324.752†	684.7	3.107 ug/L	0.5285	3.107 ug/L	0.5285	17.01%
QC value greater than the upper limit for Cu 324.752		Recovery = Not calculated				
Fe 238.204†	4.2	35.25 ug/L	14.891	35.25 ug/L	14.891	42.24%
QC value within limits for Fe 238.204		Recovery = Not calculated				
K 766.490†	190.6	100.3 ug/L	26.23	100.3 ug/L	26.23	26.15%
QC value within limits for K 766.490		Recovery = Not calculated				
Mg 285.213†	3.6	0.4491 ug/L	0.62228	0.4491 ug/L	0.62228	138.57%
QC value within limits for Mg 285.213		Recovery = Not calculated				
Mn 257.610†	29.8	0.0643 ug/L	0.04976	0.0643 ug/L	0.04976	77.43%
QC value within limits for Mn 257.610		Recovery = Not calculated				
Mo 202.031†	1.8	1.032 ug/L	2.2417	1.032 ug/L	2.2417	217.28%
QC value within limits for Mo 202.031		Recovery = Not calculated				
Na 589.592†	70.7	14.19 ug/L	10.586	14.19 ug/L	10.586	74.59%
QC value within limits for Na 589.592		Recovery = Not calculated				
Ni 231.604†	62.2	5.623 ug/L	0.3944	5.623 ug/L	0.3944	7.01%
QC value within limits for Ni 231.604		Recovery = Not calculated				
Pb 220.353†	-4.6	-2.412 ug/L	2.7763	-2.412 ug/L	2.7763	115.11%
QC value within limits for Pb 220.353		Recovery = Not calculated				
Sb 206.836†	20.5	27.94 ug/L	7.279	27.94 ug/L	7.279	26.06%
QC value within limits for Sb 206.836		Recovery = Not calculated				
Se 196.026†	-4.9	-13.70 ug/L	11.560	-13.70 ug/L	11.560	84.40%
QC value within limits for Se 196.026		Recovery = Not calculated				
SiO2 251.603†	-42.7	-3.955 ug/L	2.6668	-3.955 ug/L	2.6668	67.44%
QC value within limits for SiO2 251.603		Recovery = Not calculated				
Sr 421.552†	3812.3	0.971 ug/L	0.0851	0.971 ug/L	0.0851	8.76%
QC value within limits for Sr 421.552		Recovery = Not calculated				
Ti 334.940†	187.1	0.437 ug/L	0.1612	0.437 ug/L	0.1612	36.90%
QC value within limits for Ti 334.940		Recovery = Not calculated				
Tl 190.801†	3.5	4.621 ug/L	4.3252	4.621 ug/L	4.3252	93.61%
QC value within limits for Tl 190.801		Recovery = Not calculated				
V 290.880†	437.9	5.724 ug/L	0.5670	5.724 ug/L	0.5670	9.91%
QC value within limits for V 290.880		Recovery = Not calculated				

Zn 206.200† -3.6 -0.363 ug/L 0.3636 -0.363 ug/L 0.3636 100.15%  
QC value within limits for Zn 206.200 Recovery = Not calculated  
QC Failed. Continue with analysis.



Sequence No.: 21  
 Sample ID: C131107-09 @10X  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution: 10X

Autosampler Location: 36  
 Date Collected: 12/10/2013 2:00:02 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: C131107-09 @10X

Analyte Back Pressure Flow  
 All 194.0 kPa 0.80 L/min

## Mean Data: C131107-09 @10X

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3838085.3	98.86 %	0.778			0.79%
Sc Radial	407938.4	96.61 %	1.381			1.43%
Ag 328.068†	-126.9	-0.4127 ug/L	0.93618	-4.127 ug/L	9.3618	226.84%
Al 396.153†	74.2	14.00 ug/L	6.608	140.0 ug/L	66.08	47.19%
As 193.696†	4.9	10.46 ug/L	5.016	104.6 ug/L	50.16	47.95%
Ba 233.527†	72.1	1.459 ug/L	0.0922	14.59 ug/L	0.922	6.32%
Be 313.107†	65.1	-0.0113 ug/L	0.01641	-0.1126 ug/L	0.16409	145.67%
B 249.677†	-38.0	-1.681 ug/L	0.2832	-16.81 ug/L	2.832	16.85%
Ca 317.933†	194666.0	23490 ug/L	559.1	234900 ug/L	5590.6	2.38%
Cd 214.440†	63.1	2.474 ug/L	0.1557	24.74 ug/L	1.557	6.29%
Co 228.616†	2.6	0.2325 ug/L	0.31443	2.325 ug/L	3.1443	135.22%
Cr 267.716†	2.3	0.3948 ug/L	0.17652	3.948 ug/L	1.7652	44.71%
Cu 324.752†	297.5	1.517 ug/L	0.6835	15.17 ug/L	6.835	45.04%
Fe 238.204†	1.2	6.730 ug/L	15.3167	67.30 ug/L	153.167	227.58%
K 766.490†	540.3	259.2 ug/L	35.82	2592 ug/L	358.2	13.82%
Mg 285.213†	16361.9	2057 ug/L	48.8	20570 ug/L	487.6	2.37%
Mn 257.610†	91883.6	202.8 ug/L	2.66	2028 ug/L	26.6	1.31%
Mo 202.031†	9.0	5.142 ug/L	2.2757	51.42 ug/L	22.757	44.26%
Na 589.592†	5930.0	1188 ug/L	28.1	11880 ug/L	280.9	2.36%
Ni 231.604†	21.2	1.981 ug/L	1.3888	19.81 ug/L	13.888	70.10%
Pb 220.353†	-4.0	-2.484 ug/L	3.7334	-24.84 ug/L	37.334	150.30%
Sb 206.836†	4.4	4.350 ug/L	10.4637	43.50 ug/L	104.637	240.53%
Se 196.026†	-8.5	-24.17 ug/L	6.616	-241.7 ug/L	66.16	27.37%
SiO2 251.603†	16023.8	1573 ug/L	24.3	15730 ug/L	242.6	1.54%
Sr 421.552†	1536601.2	392.3 ug/L	0.48	3923 ug/L	4.8	0.12%
Ti 334.940†	19.7	0.046 ug/L	0.0445	0.460 ug/L	0.4454	96.84%
Tl 190.801†	3.2	2.106 ug/L	2.4494	21.06 ug/L	24.494	116.29%
V 290.880†	85.6	-0.011 ug/L	1.0849	-0.106 ug/L	10.8491	>999.9%
Zn 206.200†	5026.9	491.8 ug/L	5.04	4918 ug/L	50.4	1.02%

Sequence No.: 22

Sample ID: C131107-12 @10X

Analyst: S.VanOvermeiren

Initial Sample Wt:

Dilution: 10X

Autosampler Location: 37

Date Collected: 12/10/2013 2:03:08 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Nebulizer Parameters: C131107-12 @10X

Analyte

Back Pressure

Flow

All

196.0 kPa

0.80 L/min

Mean Data: C131107-12 @10X

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3827487.6	98.58 %	0.338			0.34%
Sc Radial	413882.1	98.01 %	0.931			0.95%
Ag 328.068†	-125.2	-0.3868 ug/L	0.41457	-3.868 ug/L	4.1457	107.17%
Al 396.153†	94.3	18.06 ug/L	7.830	180.6 ug/L	78.30	43.35%
As 193.696†	-4.8	-11.39 ug/L	12.891	-113.9 ug/L	128.91	113.14%
Ba 233.527†	80.0	1.671 ug/L	0.1620	16.71 ug/L	1.620	9.69%
Be 313.107†	-204.4	-0.1877 ug/L	0.01145	-1.877 ug/L	0.1145	6.10%
B 249.677†	-112.0	-4.946 ug/L	0.7424	-49.46 ug/L	7.424	15.01%
Ca 317.933†	192821.6	23260 ug/L	217.0	232600 ug/L	2169.5	0.93%
Cd 214.440†	54.8	2.147 ug/L	0.1950	21.47 ug/L	1.950	9.08%
Co 228.616†	5.4	0.4089 ug/L	0.24440	4.089 ug/L	2.4440	59.78%
Cr 267.716†	1.4	0.3541 ug/L	0.18249	3.541 ug/L	1.8249	51.53%
Cu 324.752†	438.2	2.161 ug/L	0.6568	21.61 ug/L	6.568	30.40%
Fe 238.204†	1.6	9.819 ug/L	30.1420	98.19 ug/L	301.420	306.99%
K 766.490†	573.3	276.5 ug/L	13.06	2765 ug/L	130.6	4.72%
Mg 285.213†	16299.5	2049 ug/L	20.0	20490 ug/L	199.8	0.98%
Mn 257.610†	90213.9	199.1 ug/L	1.59	1991 ug/L	15.9	0.80%
Mo 202.031†	7.3	4.184 ug/L	2.9719	41.84 ug/L	29.719	71.03%
Na 589.592†	5923.3	1187 ug/L	27.7	11870 ug/L	276.8	2.33%
Ni 231.604†	34.1	3.148 ug/L	1.1573	31.48 ug/L	11.573	36.76%
Pb 220.353†	-8.4	-4.811 ug/L	4.6658	-48.11 ug/L	46.658	96.99%
Sb 206.836†	1.9	0.9002 ug/L	3.75348	9.002 ug/L	37.5348	416.96%
Se 196.026†	-3.7	-10.85 ug/L	11.013	-108.5 ug/L	110.13	101.49%
SiO2 251.603†	16178.0	1588 ug/L	15.2	15880 ug/L	151.9	0.96%
Sr 421.552†	1559779.1	398.3 ug/L	0.99	3983 ug/L	9.9	0.25%
Ti 334.940†	26.3	0.061 ug/L	0.0565	0.614 ug/L	0.5653	92.02%
Tl 190.801†	4.5	3.785 ug/L	4.2770	37.85 ug/L	42.770	112.99%
V 290.880†	133.1	0.596 ug/L	0.5277	5.961 ug/L	5.2775	88.53%
Zn 206.200†	4620.2	452.0 ug/L	2.37	4520 ug/L	23.7	0.52%

Sequence No.: 23  
 Sample ID: C131107-14 @10X  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution: 10X

Autosampler Location: 38  
 Date Collected: 12/10/2013 2:06:13 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: C131107-14 @10X

Analyte Back Pressure Flow  
 All 194.0 kPa 0.80 L/min

## Mean Data: C131107-14 @10X

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3813891.2	98.23 %	0.552			0.56%
Sc Radial	415883.0	98.49 %	0.779			0.79%
Ag 328.068†	-135.7	-0.4629 ug/L	0.14154	-4.629 ug/L	1.4154	30.57%
Al 396.153†	122.0	23.20 ug/L	14.910	232.0 ug/L	149.10	64.27%
As 193.696†	-1.4	-3.805 ug/L	7.1039	-38.05 ug/L	71.039	186.69%
Ba 233.527†	78.4	1.620 ug/L	0.0314	16.20 ug/L	0.314	1.94%
Be 313.107†	-178.0	-0.1717 ug/L	0.04757	-1.717 ug/L	0.4757	27.71%
B 249.677†	-156.3	-6.902 ug/L	0.4318	-69.02 ug/L	4.318	6.26%
Ca 317.933†	199503.3	24070 ug/L	533.6	240700 ug/L	5336.1	2.22%
Cd 214.440†	30.2	1.190 ug/L	0.1285	11.90 ug/L	1.285	10.81%
Co 228.616†	0.3	0.0948 ug/L	0.28302	0.9484 ug/L	2.83016	298.43%
Cr 267.716†	3.4	0.4654 ug/L	0.07848	4.654 ug/L	0.7848	16.86%
Cu 324.752†	223.6	1.186 ug/L	0.0480	11.86 ug/L	0.480	4.05%
Fe 238.204†	0.9	4.206 ug/L	26.2629	42.06 ug/L	262.629	624.38%
K 766.490†	640.9	312.2 ug/L	38.29	3122 ug/L	382.9	12.26%
Mg 285.213†	17317.4	2177 ug/L	42.5	21770 ug/L	425.3	1.95%
Mn 257.610†	82340.9	181.7 ug/L	1.42	1817 ug/L	14.2	0.78%
Mo 202.031†	4.4	2.523 ug/L	1.0325	25.23 ug/L	10.325	40.92%
Na 589.592†	6132.0	1229 ug/L	35.6	12290 ug/L	356.4	2.90%
Ni 231.604†	32.2	2.979 ug/L	1.0229	29.79 ug/L	10.229	34.33%
Pb 220.353†	-5.7	-3.394 ug/L	6.1369	-33.94 ug/L	61.369	180.82%
Sb 206.836†	4.4	4.215 ug/L	9.2027	42.15 ug/L	92.027	218.35%
Se 196.026†	-5.6	-16.06 ug/L	24.911	-160.6 ug/L	249.11	155.10%
SiO2 251.603†	16467.5	1616 ug/L	14.1	16160 ug/L	140.5	0.87%
Sr 421.552†	1570920.0	401.1 ug/L	1.71	4011 ug/L	17.1	0.43%
Ti 334.940†	20.0	0.047 ug/L	0.0892	0.468 ug/L	0.8923	190.73%
Tl 190.801†	0.5	-1.217 ug/L	2.9510	-12.17 ug/L	29.510	242.39%
V 290.880†	140.6	0.674 ug/L	0.5198	6.738 ug/L	5.1981	77.15%
Zn 206.200†	4092.3	400.3 ug/L	1.63	4003 ug/L	16.3	0.41%

Sequence No.: 24  
 Sample ID: C131107-16 @10X  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution: 10X

Autosampler Location: 39  
 Date Collected: 12/10/2013 2:09:17 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: C131107-16 @10X

Analyte Back Pressure Flow  
 All 194.0 kPa 0.80 L/min

## Mean Data: C131107-16 @10X

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3833715.0	98.74 %	0.800			0.81%
Sc Radial	404366.5	95.76 %	2.777			2.90%
Ag 328.068†	-2.9	0.6164 ug/L	1.09900	6.164 ug/L	10.9900	178.29%
Al 396.153†	157.7	29.49 ug/L	12.807	294.9 ug/L	128.07	43.42%
As 193.696†	0.6	0.5695 ug/L	7.42565	5.695 ug/L	74.2565	>999.9%
Ba 233.527†	74.1	1.477 ug/L	0.1419	14.77 ug/L	1.419	9.61%
Be 313.107†	-107.3	-0.1286 ug/L	0.02604	-1.286 ug/L	0.2604	20.25%
B 249.677†	-163.7	-7.231 ug/L	0.6342	-72.31 ug/L	6.342	8.77%
Ca 317.933†	214796.4	25920 ug/L	999.4	259200 ug/L	9994.4	3.86%
Cd 214.440†	39.7	1.561 ug/L	0.0217	15.61 ug/L	0.217	1.39%
Co 228.616†	-0.5	0.0541 ug/L	0.72821	0.5413 ug/L	7.28209	>999.9%
Cr 267.716†	2.9	0.4718 ug/L	0.14830	4.718 ug/L	1.4830	31.43%
Cu 324.752†	55.8	0.4309 ug/L	0.35924	4.309 ug/L	3.5924	83.36%
Fe 238.204†	3.5	25.34 ug/L	14.575	253.4 ug/L	145.75	57.52%
K 766.490†	752.8	371.5 ug/L	26.09	3715 ug/L	260.9	7.02%
Mg 285.213†	20208.4	2541 ug/L	104.8	25410 ug/L	1048.3	4.13%
Mn 257.610†	75155.0	165.8 ug/L	0.47	1658 ug/L	4.7	0.28%
Mo 202.031†	4.6	2.581 ug/L	2.2945	25.81 ug/L	22.945	88.90%
Na 589.592†	7558.2	1516 ug/L	50.6	15160 ug/L	506.3	3.34%
Ni 231.604†	36.4	3.351 ug/L	1.1523	33.51 ug/L	11.523	34.38%
Pb 220.353†	1.1	0.2115 ug/L	4.83866	2.115 ug/L	48.3866	>999.9%
Sb 206.836†	-1.2	-3.386 ug/L	5.1228	-33.86 ug/L	51.228	151.29%
Se 196.026†	-3.4	-10.21 ug/L	11.380	-102.1 ug/L	113.80	111.48%
SiO2 251.603†	18635.2	1830 ug/L	8.7	18300 ug/L	87.5	0.48%
Sr 421.552†	1602352.8	409.1 ug/L	0.64	4091 ug/L	6.4	0.16%
Ti 334.940†	10.6	0.025 ug/L	0.0877	0.247 ug/L	0.8769	355.09%
Tl 190.801†	6.1	5.706 ug/L	2.4792	57.06 ug/L	24.792	43.45%
V 290.880†	7.3	-1.119 ug/L	0.5174	-11.19 ug/L	5.174	46.22%
Zn 206.200†	3686.7	360.5 ug/L	3.51	3605 ug/L	35.1	0.97%

Sequence No.: 25  
 Sample ID: C131107-19  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution:

Autosampler Location: 40  
 Date Collected: 12/10/2013 2:12:20 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: C131107-19

Analyte	Back Pressure	Flow
All	194.0 kPa	0.80 L/min

## Mean Data: C131107-19

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3783228.1	97.44 %	0.902			0.93%
Sc Radial	402236.7	95.26 %	0.681			0.72%
Ag 328.068†	-12.7	1.162 ug/L	0.5951	1.162 ug/L	0.5951	51.23%
Al 396.153†	235.4	36.92 ug/L	9.788	36.92 ug/L	9.788	26.51%
As 193.696†	-38.4	-87.71 ug/L	9.262	-87.71 ug/L	9.262	10.56%
Ba 233.527†	2248.2	60.00 ug/L	0.434	60.00 ug/L	0.434	0.72%
Be 313.107†	-285.9	-0.3194 ug/L	0.06636	-0.3194 ug/L	0.06636	20.78%
B 249.677†	-273.1	-12.06 ug/L	1.262	-12.06 ug/L	1.262	10.46%
Ca 317.933†	518301.5	62540 ug/L	943.5	62540 ug/L	943.5	1.51%
Cd 214.440†	5.1	0.2548 ug/L	0.02772	0.2548 ug/L	0.02772	10.88%
Co 228.616†	1.8	0.3542 ug/L	0.13227	0.3542 ug/L	0.13227	37.34%
Cr 267.716†	1.4	0.9210 ug/L	0.29265	0.9210 ug/L	0.29265	31.77%
Cu 324.752†	499.7	2.619 ug/L	0.4379	2.619 ug/L	0.4379	16.72%
Fe 238.204†	6.4	44.62 ug/L	39.658	44.62 ug/L	39.658	88.88%
K 766.490†	2801.6	1454 ug/L	29.2	1454 ug/L	29.2	2.01%
Mg 285.213†	73757.2	9275 ug/L	128.2	9275 ug/L	128.2	1.38%
Mn 257.610†	85092.5	187.5 ug/L	1.40	187.5 ug/L	1.40	0.75%
Mo 202.031†	11.0	5.914 ug/L	1.3079	5.914 ug/L	1.3079	22.12%
Na 589.592†	24544.3	4932 ug/L	62.4	4932 ug/L	62.4	1.26%
Ni 231.604†	59.5	5.439 ug/L	1.5395	5.439 ug/L	1.5395	28.30%
Pb 220.353†	-8.7	-5.001 ug/L	3.5762	-5.001 ug/L	3.5762	71.51%
Sb 206.836†	5.5	3.463 ug/L	3.1105	3.463 ug/L	3.1105	89.81%
Se 196.026†	-4.9	-16.63 ug/L	24.992	-16.63 ug/L	24.992	150.30%
SiO2 251.603†	92642.0	9121 ug/L	85.6	9121 ug/L	85.6	0.94%
Sr 421.552†	2902153.4	740.8 ug/L	4.38	740.8 ug/L	4.38	0.59%
Ti 334.940†	-26.7	-0.062 ug/L	0.0826	-0.062 ug/L	0.0826	132.33%
Tl 190.801†	0.6	-3.934 ug/L	5.2259	-3.934 ug/L	5.2259	132.86%
V 290.880†	185.4	-0.013 ug/L	0.8091	-0.013 ug/L	0.8091	>999.9%
Zn 206.200†	1765.2	171.7 ug/L	0.62	171.7 ug/L	0.62	0.36%

Sequence No.: 26

Sample ID: C131107-22 @10X

Analyst: S.VanOvermeiren

Initial Sample Wt:

Dilution: 10X

Autosampler Location: 41

Date Collected: 12/10/2013 2:15:32 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Nebulizer Parameters: C131107-22 @10X

Analyte	Back Pressure	Flow
All	194.0 kPa	0.80 L/min

Mean Data: C131107-22 @10X

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3836190.8	98.81 %	2.161			2.19%
Sc Radial	404734.3	95.85 %	1.494			1.56%
Ag 328.068†	-48.4	1.106 ug/L	0.6025	11.06 ug/L	6.025	54.49%
Al 396.153†	212.1	38.19 ug/L	5.863	381.9 ug/L	58.63	15.35%
As 193.696†	-26.5	-60.54 ug/L	12.016	-605.4 ug/L	120.16	19.85%
Ba 233.527†	95.1	1.350 ug/L	0.0806	13.50 ug/L	0.806	5.97%
Be 313.107†	184.2	-0.0048 ug/L	0.02686	-0.0483 ug/L	0.26860	556.64%
B 249.677†	-188.3	-8.316 ug/L	2.2739	-83.16 ug/L	22.739	27.34%
Ca 317.933†	427012.1	51520 ug/L	643.4	515200 ug/L	6433.9	1.25%
Cd 214.440†	-10.8	-0.3722 ug/L	0.09602	-3.722 ug/L	0.9602	25.80%
Co 228.616†	2.9	0.3715 ug/L	0.43348	3.715 ug/L	4.3348	116.68%
Cr 267.716†	-1.3	0.8689 ug/L	0.23921	8.689 ug/L	2.3921	27.53%
Cu 324.752†	58.3	0.7675 ug/L	0.86055	7.675 ug/L	8.6055	112.12%
Fe 238.204†	38.4	310.2 ug/L	27.67	3102 ug/L	276.7	8.92%
K 766.490†	4672.5	2437 ug/L	19.5	24370 ug/L	195.4	0.80%
Mg 285.213†	73048.9	9187 ug/L	125.9	91870 ug/L	1258.6	1.37%
Mn 257.610†	29449.3	64.60 ug/L	1.570	646.0 ug/L	15.70	2.43%
Mo 202.031†	12.6	7.079 ug/L	2.3667	70.79 ug/L	23.667	33.43%
Na 589.592†	32692.7	6573 ug/L	84.9	65730 ug/L	848.6	1.29%
Ni 231.604†	30.9	2.975 ug/L	1.6985	29.75 ug/L	16.985	57.09%
Pb 220.353†	-5.5	-4.106 ug/L	8.0665	-41.06 ug/L	80.665	196.46%
Sb 206.836†	3.9	0.6692 ug/L	5.31389	6.692 ug/L	53.1389	794.11%
Se 196.026†	0.9	0.7239 ug/L	30.49849	7.239 ug/L	304.9849	>999.9%
SiO2 251.603†	95192.2	9369 ug/L	217.1	93690 ug/L	2171.3	2.32%
Sr 421.552†	3430073.8	875.8 ug/L	22.66	8758 ug/L	226.6	2.59%
Ti 334.940†	-14.5	-0.034 ug/L	0.0968	-0.338 ug/L	0.9681	286.45%
Tl 190.801†	6.0	2.855 ug/L	6.1843	28.55 ug/L	61.843	216.59%
V 290.880†	36.1	-2.131 ug/L	0.3817	-21.31 ug/L	3.817	17.91%
Zn 206.200†	161.0	14.12 ug/L	0.506	141.2 ug/L	5.06	3.58%

Sequence No.: 27  
 Sample ID: C131107-25 @10X  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution: 10X

Autosampler Location: 42  
 Date Collected: 12/10/2013 2:18:44 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: C131107-25 @10X

Analyte Back Pressure Flow  
 All 195.0 kPa 0.80 L/min

## Mean Data: C131107-25 @10X

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3822345.8	98.45 %	1.180			1.20%
Sc Radial	401632.7	95.11 %	2.091			2.20%
Ag 328.068†	1.4	0.5418 ug/L	0.59975	5.418 ug/L	5.9975	110.70%
Al 396.153†	125.2	22.36 ug/L	14.165	223.6 ug/L	141.65	63.34%
As 193.696†	-5.6	-12.67 ug/L	3.829	-126.7 ug/L	38.29	30.21%
Ba 233.527†	203.6	4.982 ug/L	0.1782	49.82 ug/L	1.782	3.58%
Be 313.107†	61.3	-0.0156 ug/L	0.03406	-0.1559 ug/L	0.34057	218.43%
B 249.677†	-118.3	-5.223 ug/L	1.2938	-52.23 ug/L	12.938	24.77%
Ca 317.933†	184678.3	22280 ug/L	688.5	222800 ug/L	6885.1	3.09%
Cd 214.440†	-7.3	-0.2615 ug/L	0.03748	-2.615 ug/L	0.3748	14.33%
Co 228.616†	9.1	0.6545 ug/L	0.09657	6.545 ug/L	0.9657	14.75%
Cr 267.716†	1.7	0.2008 ug/L	0.26358	2.008 ug/L	2.6358	131.28%
Cu 324.752†	76.4	0.5824 ug/L	0.44885	5.824 ug/L	4.4885	77.07%
Fe 238.204†	20.9	169.3 ug/L	18.37	1693 ug/L	183.7	10.85%
K 766.490†	2940.8	1545 ug/L	35.0	15450 ug/L	350.4	2.27%
Mg 285.213†	36587.5	4601 ug/L	158.3	46010 ug/L	1582.8	3.44%
Mn 257.610†	225515.3	497.8 ug/L	5.11	4978 ug/L	51.1	1.03%
Mo 202.031†	2.6	1.436 ug/L	1.3189	14.36 ug/L	13.189	91.86%
Na 589.592†	16001.6	3218 ug/L	103.8	32180 ug/L	1038.2	3.23%
Ni 231.604†	38.4	3.554 ug/L	1.8177	35.54 ug/L	18.177	51.14%
Pb 220.353†	6.0	2.463 ug/L	5.2130	24.63 ug/L	52.130	211.65%
Sb 206.836†	0.6	-1.263 ug/L	9.5320	-12.63 ug/L	95.320	754.54%
Se 196.026†	-1.6	-5.936 ug/L	16.7612	-59.36 ug/L	167.612	282.39%
SiO2 251.603†	52549.2	5173 ug/L	50.1	51730 ug/L	501.4	0.97%
Sr 421.552†	1443077.1	368.4 ug/L	1.08	3684 ug/L	10.8	0.29%
Ti 334.940†	66.8	0.156 ug/L	0.1122	1.560 ug/L	1.1217	71.90%
Tl 190.801†	9.7	9.450 ug/L	2.3268	94.50 ug/L	23.268	24.62%
V 290.880†	-8.0	-1.290 ug/L	0.7841	-12.90 ug/L	7.841	60.78%
Zn 206.200†	98.3	8.802 ug/L	0.6654	88.02 ug/L	6.654	7.56%

Sequence No.: 28

Sample ID: C131107-28 @10X

Analyst: S.VanOvermeiren

Initial Sample Wt:

Dilution: 10X

Autosampler Location: 43

Date Collected: 12/10/2013 2:21:48 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Nebulizer Parameters: C131107-28 @10X

Analyte

Back Pressure

Flow

All

194.0 kPa

0.80 L/min

Mean Data: C131107-28 @10X

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3805373.6	98.01 %	1.142			1.16%
Sc Radial	407599.2	96.53 %	1.310			1.36%
Ag 328.068†	-99.1	-0.1360 ug/L	0.43351	-1.360 ug/L	4.3351	318.71%
Al 396.153†	81.2	15.13 ug/L	16.383	151.3 ug/L	163.83	108.26%
As 193.696†	-7.3	-17.29 ug/L	3.000	-172.9 ug/L	30.00	17.35%
Ba 233.527†	54.4	0.9676 ug/L	0.11681	9.676 ug/L	1.1681	12.07%
Be 313.107†	-55.9	-0.0928 ug/L	0.05688	-0.9278 ug/L	0.56876	61.30%
B 249.677†	-208.2	-9.198 ug/L	1.2454	-91.98 ug/L	12.454	13.54%
Ca 317.933†	210710.0	25420 ug/L	463.1	254200 ug/L	4631.1	1.82%
Cd 214.440†	-2.3	-0.0786 ug/L	0.29178	-0.7860 ug/L	2.91777	371.24%
Co 228.616†	-5.7	-0.2746 ug/L	0.18302	-2.746 ug/L	1.8302	66.64%
Cr 267.716†	1.4	0.4871 ug/L	0.41137	4.871 ug/L	4.1137	84.46%
Cu 324.752†	149.3	0.8301 ug/L	0.66302	8.301 ug/L	6.6302	79.87%
Fe 238.204†	2.3	16.07 ug/L	8.778	160.7 ug/L	87.78	54.62%
K 766.490†	523.4	249.2 ug/L	36.02	2492 ug/L	360.2	14.46%
Mg 285.213†	18663.9	2347 ug/L	51.8	23470 ug/L	518.5	2.21%
Mn 257.610†	106.9	0.0918 ug/L	0.03922	0.9176 ug/L	0.39215	42.74%
Mo 202.031†	5.7	3.215 ug/L	1.8961	32.15 ug/L	18.961	58.97%
Na 589.592†	7213.8	1447 ug/L	41.0	14470 ug/L	410.3	2.84%
Ni 231.604†	42.1	3.850 ug/L	0.6515	38.50 ug/L	6.515	16.92%
Pb 220.353†	-0.7	-0.5771 ug/L	0.72378	-5.771 ug/L	7.2378	125.42%
Sb 206.836†	6.5	7.156 ug/L	6.5891	71.56 ug/L	65.891	92.07%
Se 196.026†	-2.2	-6.497 ug/L	10.5330	-64.97 ug/L	105.330	162.11%
SiO2 251.603†	12408.6	1217 ug/L	14.0	12170 ug/L	140.0	1.15%
Sr 421.552†	1554852.5	397.0 ug/L	0.98	3970 ug/L	9.8	0.25%
Ti 334.940†	-1.6	-0.004 ug/L	0.0722	-0.038 ug/L	0.7222	>999.9%
Tl 190.801†	8.0	8.676 ug/L	3.4750	86.76 ug/L	34.750	40.05%
V 290.880†	81.0	-0.076 ug/L	0.3808	-0.755 ug/L	3.8076	504.20%
Zn 206.200†	20.9	1.493 ug/L	0.5050	14.93 ug/L	5.050	33.84%



Sequence No.: 29

Sample ID: C131107-30 @10X

Analyst: S.VanOvermeiren

Initial Sample Wt:

Dilution: 10X

Autosampler Location: 44

Date Collected: 12/10/2013 2:24:52 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Nebulizer Parameters: C131107-30 @10X

Analyte

Back Pressure

Flow

All

196.0 kPa

0.80 L/min

Mean Data: C131107-30 @10X

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3810085.6	98.14 %	1.443			1.47%
Sc Radial	413502.7	97.92 %	0.125			0.13%
Ag 328.068†	-78.0	0.0184 ug/L	1.12329	0.1840 ug/L	11.23291	>999.9%
Al 396.153†	122.6	23.45 ug/L	1.313	234.5 ug/L	13.13	5.60%
As 193.696†	0.9	1.411 ug/L	4.1401	14.11 ug/L	41.401	293.51%
Ba 233.527†	79.7	1.655 ug/L	0.1652	16.55 ug/L	1.652	9.98%
Be 313.107†	-22.4	-0.0700 ug/L	0.03033	-0.7004 ug/L	0.30328	43.30%
B 249.677†	-202.1	-8.929 ug/L	1.5324	-89.29 ug/L	15.324	17.16%
Ca 317.933†	199654.4	24090 ug/L	152.8	240900 ug/L	1528.2	0.63%
Cd 214.440†	-5.5	-0.2073 ug/L	0.02920	-2.073 ug/L	0.2920	14.08%
Co 228.616†	2.4	0.2222 ug/L	0.94583	2.222 ug/L	9.4583	425.62%
Cr 267.716†	2.2	0.4418 ug/L	0.37267	4.418 ug/L	3.7267	84.35%
Cu 324.752†	75.4	0.5210 ug/L	0.52674	5.210 ug/L	5.2674	101.10%
Fe 238.204†	15.7	127.4 ug/L	7.15	1274 ug/L	71.5	5.61%
K 766.490†	1157.3	584.9 ug/L	13.77	5849 ug/L	137.7	2.35%
Mg 285.213†	17789.9	2237 ug/L	10.6	22370 ug/L	105.8	0.47%
Mn 257.610†	56645.1	125.0 ug/L	0.92	1250 ug/L	9.2	0.74%
Mo 202.031†	6.2	3.573 ug/L	0.2957	35.73 ug/L	2.957	8.28%
Na 589.592†	6805.2	1364 ug/L	11.0	13640 ug/L	110.0	0.81%
Ni 231.604†	42.9	3.926 ug/L	0.2641	39.26 ug/L	2.641	6.73%
Pb 220.353†	-2.4	-1.561 ug/L	6.2755	-15.61 ug/L	62.755	401.90%
Sb 206.836†	3.8	3.554 ug/L	5.8892	35.54 ug/L	58.892	165.72%
Se 196.026†	-4.3	-12.46 ug/L	9.337	-124.6 ug/L	93.37	74.92%
SiO2 251.603†	13421.3	1316 ug/L	12.0	13160 ug/L	120.0	0.91%
Sr 421.552†	1590422.1	406.1 ug/L	2.06	4061 ug/L	20.6	0.51%
Ti 334.940†	14.9	0.035 ug/L	0.0263	0.348 ug/L	0.2626	75.48%
Tl 190.801†	2.0	0.786 ug/L	10.7431	7.860 ug/L	107.4310	>999.9%
V 290.880†	97.4	0.116 ug/L	0.9545	1.163 ug/L	9.5453	820.58%
Zn 206.200†	44.1	3.703 ug/L	0.4485	37.03 ug/L	4.485	12.11%

Sequence No.: 30  
 Sample ID: Blank  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution:

Autosampler Location: 45  
 Date Collected: 12/10/2013 2:27:56 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: Blank

Analyte Back Pressure Flow  
 All 194.0 kPa 0.80 L/min

## Mean Data: Blank

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3844408.6	99.02 %	1.049			1.06%
Sc Radial	405311.9	95.98 %	1.637			1.71%
Ag 328.068†	-61.8	-0.4912 ug/L	0.47733	-0.4912 ug/L	0.47733	97.18%
Al 396.153†	50.5	9.588 ug/L	4.7305	9.588 ug/L	4.7305	49.34%
As 193.696†	2.1	4.675 ug/L	3.6588	4.675 ug/L	3.6588	78.27%
Ba 233.527†	2.3	0.0620 ug/L	0.09805	0.0620 ug/L	0.09805	158.13%
Be 313.107†	-141.1	-0.0926 ug/L	0.06386	-0.0926 ug/L	0.06386	68.97%
B 249.677†	-53.5	-2.364 ug/L	1.3454	-2.364 ug/L	1.3454	56.91%
Ca 317.933†	109.9	13.26 ug/L	0.840	13.26 ug/L	0.840	6.33%
Cd 214.440†	-1.3	-0.0520 ug/L	0.12462	-0.0520 ug/L	0.12462	239.62%
Co 228.616†	-3.4	-0.2106 ug/L	0.18058	-0.2106 ug/L	0.18058	85.74%
Cr 267.716†	1.8	0.0832 ug/L	0.22460	0.0832 ug/L	0.22460	270.00%
Cu 324.752†	-11.6	-0.0499 ug/L	0.50999	-0.0499 ug/L	0.50999	>999.9%
Fe 238.204†	2.4	19.92 ug/L	30.692	19.92 ug/L	30.692	154.04%
K 766.490†	118.0	62.65 ug/L	20.094	62.65 ug/L	20.094	32.07%
Mg 285.213†	4.0	0.5122 ug/L	0.39273	0.5122 ug/L	0.39273	76.67%
Mn 257.610†	20.1	0.0450 ug/L	0.02777	0.0450 ug/L	0.02777	61.68%
Mo 202.031†	-2.1	-1.234 ug/L	1.2183	-1.234 ug/L	1.2183	98.69%
Na 589.592†	65.9	13.33 ug/L	7.949	13.33 ug/L	7.949	59.62%
Ni 231.604†	7.2	0.6502 ug/L	1.60876	0.6502 ug/L	1.60876	247.43%
Pb 220.353†	1.9	1.024 ug/L	4.8463	1.024 ug/L	4.8463	473.44%
Sb 206.836†	2.2	3.025 ug/L	3.2993	3.025 ug/L	3.2993	109.08%
Se 196.026†	-6.7	-18.88 ug/L	11.085	-18.88 ug/L	11.085	58.70%
SiO2 251.603†	815.4	80.38 ug/L	1.099	80.38 ug/L	1.099	1.37%
Sr 421.552†	1677.7	0.427 ug/L	0.1661	0.427 ug/L	0.1661	38.88%
Ti 334.940†	-0.1	0.000 ug/L	0.0277	0.000 ug/L	0.0277	>999.9%
Tl 190.801†	2.5	3.136 ug/L	9.3666	3.136 ug/L	9.3666	298.66%
V 290.880†	40.3	0.518 ug/L	0.4856	0.518 ug/L	0.4856	93.70%
Zn 206.200†	-5.0	-0.494 ug/L	0.4132	-0.494 ug/L	0.4132	83.62%

Sequence No.: 31  
 Sample ID: SEQ-CCV  
 Analyst:  
 Initial Sample Wt:  
 Dilution:

Autosampler Location: 3  
 Date Collected: 12/10/2013 2:30:59 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: SEQ-CCV

Analyte Back Pressure Flow  
 All 195.0 kPa 0.80 L/min

## Mean Data: SEQ-CCV

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3819024.2	98.37 %	0.856			0.87%
Sc Radial	402529.9	95.32 %	1.162			1.22%
Ag 328.068†	31460.3	253.7 ug/L	3.48	253.7 ug/L	3.48	1.37%
QC value within limits for Ag 328.068 Recovery = 101.46%						
Al 396.153†	65549.7	12420 ug/L	241.6	12420 ug/L	241.6	1.95%
QC value within limits for Al 396.153 Recovery = 99.35%						
As 193.696†	1124.8	2569 ug/L	27.0	2569 ug/L	27.0	1.05%
QC value within limits for As 193.696 Recovery = 102.78%						
Ba 233.527†	18594.3	503.2 ug/L	5.41	503.2 ug/L	5.41	1.07%
QC value within limits for Ba 233.527 Recovery = 100.64%						
Be 313.107†	773707.4	506.7 ug/L	0.63	506.7 ug/L	0.63	0.12%
QC value within limits for Be 313.107 Recovery = 101.34%						
B 249.677†	115398.2	5097 ug/L	71.4	5097 ug/L	71.4	1.40%
QC value within limits for B 249.677 Recovery = 101.95%						
Ca 317.933†	100648.4	12080 ug/L	210.4	12080 ug/L	210.4	1.74%
QC value within limits for Ca 317.933 Recovery = 96.67%						
Cd 214.440†	13119.8	512.0 ug/L	5.82	512.0 ug/L	5.82	1.14%
QC value within limits for Cd 214.440 Recovery = 102.41%						
Co 228.616†	8193.7	511.0 ug/L	6.81	511.0 ug/L	6.81	1.33%
QC value within limits for Co 228.616 Recovery = 102.20%						
Cr 267.716†	56439.9	2568 ug/L	30.7	2568 ug/L	30.7	1.20%
QC value within limits for Cr 267.716 Recovery = 102.74%						
Cu 324.752†	220140.2	999.6 ug/L	11.35	999.6 ug/L	11.35	1.14%
QC value within limits for Cu 324.752 Recovery = 99.96%						
Fe 238.204†	1423.7	11850 ug/L	190.2	11850 ug/L	190.2	1.60%
QC value within limits for Fe 238.204 Recovery = 94.78%						
K 766.490†	46499.6	24510 ug/L	476.1	24510 ug/L	476.1	1.94%
QC value within limits for K 766.490 Recovery = 98.02%						
Mg 285.213†	99690.5	12530 ug/L	218.0	12530 ug/L	218.0	1.74%
QC value within limits for Mg 285.213 Recovery = 100.24%						
Mn 257.610†	458815.4	1012 ug/L	2.5	1012 ug/L	2.5	0.25%
QC value within limits for Mn 257.610 Recovery = 101.22%						
Mo 202.031†	866.2	497.6 ug/L	3.89	497.6 ug/L	3.89	0.78%
QC value within limits for Mo 202.031 Recovery = 99.51%						
Na 589.592†	61487.3	12280 ug/L	225.6	12280 ug/L	225.6	1.84%
QC value within limits for Na 589.592 Recovery = 98.24%						
Ni 231.604†	28250.9	2556 ug/L	25.8	2556 ug/L	25.8	1.01%
QC value within limits for Ni 231.604 Recovery = 102.25%						
Pb 220.353†	4808.5	2516 ug/L	16.8	2516 ug/L	16.8	0.67%
QC value within limits for Pb 220.353 Recovery = 100.65%						
Sb 206.836†	1869.8	2505 ug/L	32.3	2505 ug/L	32.3	1.29%
QC value within limits for Sb 206.836 Recovery = 100.19%						
Se 196.026†	922.4	2590 ug/L	43.4	2590 ug/L	43.4	1.68%
QC value within limits for Se 196.026 Recovery = 103.62%						
SiO2 251.603†	103464.1	10180 ug/L	121.8	10180 ug/L	121.8	1.20%
QC value within limits for SiO2 251.603 Recovery = 101.82%						
Sr 421.552†	1975498.8	503.4 ug/L	1.78	503.4 ug/L	1.78	0.35%
QC value within limits for Sr 421.552 Recovery = 100.68%						
Ti 334.940†	217080.8	506.7 ug/L	5.10	506.7 ug/L	5.10	1.01%
QC value within limits for Ti 334.940 Recovery = 101.34%						
Tl 190.801†	1993.0	2537 ug/L	6.7	2537 ug/L	6.7	0.26%
QC value within limits for Tl 190.801 Recovery = 101.47%						
V 290.880†	78023.1	1020 ug/L	11.1	1020 ug/L	11.1	1.09%
QC value within limits for V 290.880 Recovery = 101.97%						

Zn 206.200† 26211.0 2562 ug/L 30.7 2562 ug/L 30.7 1.20%  
QC value within limits for Zn 206.200 Recovery = 102.47%  
All analyte(s) passed QC.

Sequence No.: 32  
Sample ID: SEQ-CCB  
Analyst:  
Initial Sample Wt:  
Dilution:

Autosampler Location: 1  
Date Collected: 12/10/2013 2:34:06 PM  
Data Type: Original  
Initial Sample Vol:  
Sample Prep Vol:

**Nebulizer Parameters: SEQ-CCB**

Analyte	Back Pressure	Flow
All	194.0 kPa	0.80 L/min

Mean Data: SEO-CCB

Mean Corrected				Calib		Sample			
Analyte		Intensity	Conc.	Units	Std.Dev.	Conc.	Units	Std.Dev.	RSD
Sc Axial		3791209.3	97.65	%	0.244				0.25%
Sc Radial		400909.0	94.94	%	0.232				0.24%
Ag	328.068†	-18.7	-0.1460	ug/L	0.57560	-0.1460	ug/L	0.57560	394.33%
	QC value	within limits	for Ag	328.068	Recovery =	Not calculated			
Al	396.153†	14.8	2.650	ug/L	16.2257	2.650	ug/L	16.2257	612.22%
	QC value	within limits	for Al	396.153	Recovery =	Not calculated			
As	193.696†	2.9	6.603	ug/L	16.9380	6.603	ug/L	16.9380	256.52%
	QC value	within limits	for As	193.696	Recovery =	Not calculated			
Ba	233.527†	6.8	0.1798	ug/L	0.11309	0.1798	ug/L	0.11309	62.90%
	QC value	within limits	for Ba	233.527	Recovery =	Not calculated			
Be	313.107†	108.9	0.0708	ug/L	0.03373	0.0708	ug/L	0.03373	47.64%
	QC value	within limits	for Be	313.107	Recovery =	Not calculated			
B	249.677†	213.4	9.427	ug/L	1.2167	9.427	ug/L	1.2167	12.91%
	QC value	within limits	for B	249.677	Recovery =	Not calculated			
Ca	317.933†	18.7	2.164	ug/L	1.8374	2.164	ug/L	1.8374	84.92%
	QC value	within limits	for Ca	317.933	Recovery =	Not calculated			
Cd	214.440†	3.3	0.1279	ug/L	0.07861	0.1279	ug/L	0.07861	61.47%
	QC value	within limits	for Cd	214.440	Recovery =	Not calculated			
Co	228.616†	-0.1	-0.0062	ug/L	0.17401	-0.0062	ug/L	0.17401	>999.9%
	QC value	within limits	for Co	228.616	Recovery =	Not calculated			
Cr	267.716†	-3.0	-0.1349	ug/L	0.06752	-0.1349	ug/L	0.06752	50.06%
	QC value	within limits	for Cr	267.716	Recovery =	Not calculated			
Cu	324.752†	100.2	0.4549	ug/L	0.13871	0.4549	ug/L	0.13871	30.49%
	QC value	within limits	for Cu	324.752	Recovery =	Not calculated			
Fe	238.204†	0.8	6.275	ug/L	24.9326	6.275	ug/L	24.9326	397.35%
	QC value	within limits	for Fe	238.204	Recovery =	Not calculated			
K	766.490†	160.7	84.42	ug/L	28.178	84.42	ug/L	28.178	33.38%
	QC value	within limits	for K	766.490	Recovery =	Not calculated			
Mg	285.213†	5.0	0.6168	ug/L	1.47428	0.6168	ug/L	1.47428	239.01%
	QC value	within limits	for Mg	285.213	Recovery =	Not calculated			
Mn	257.610†	20.4	0.0432	ug/L	0.01202	0.0432	ug/L	0.01202	27.84%
	QC value	within limits	for Mn	257.610	Recovery =	Not calculated			
Mo	202.031†	6.5	3.748	ug/L	1.6076	3.748	ug/L	1.6076	42.89%
	QC value	within limits	for Mo	202.031	Recovery =	Not calculated			
Na	589.592†	36.9	7.317	ug/L	13.9060	7.317	ug/L	13.9060	190.05%
	QC value	within limits	for Na	589.592	Recovery =	Not calculated			
Ni	231.604†	24.9	2.257	ug/L	0.6697	2.257	ug/L	0.6697	29.67%
	QC value	within limits	for Ni	231.604	Recovery =	Not calculated			
Pb	220.353†	6.7	3.524	ug/L	3.5802	3.524	ug/L	3.5802	101.61%
	QC value	within limits	for Pb	220.353	Recovery =	Not calculated			
Sb	206.836†	15.8	21.54	ug/L	5.731	21.54	ug/L	5.731	26.60%
	QC value	within limits	for Sb	206.836	Recovery =	Not calculated			
Se	196.026†	-5.6	-15.58	ug/L	19.272	-15.58	ug/L	19.272	123.67%
	QC value	within limits	for Se	196.026	Recovery =	Not calculated			
SiO2	251.603†	-59.4	-5.892	ug/L	1.1583	-5.892	ug/L	1.1583	19.66%
	QC value	within limits	for SiO2	251.603	Recovery =	Not calculated			
Sr	421.552†	1381.9	0.352	ug/L	0.0888	0.352	ug/L	0.0888	25.22%
	QC value	within limits	for Sr	421.552	Re				

Zn 206.200† 5.7 0.541 ug/L 0.4088 0.541 ug/L 0.4088 75.51%

QC value within limits for Zn 206.200 Recovery = Not calculated

All analyte(s) passed QC.

=====  
Analysis Begun

Start Time: 12/10/2013 2:41:01 PM

Plasma On Time: 12/10/2013 11:59:25 AM

Logged In Analyst: esat

Technique: ICP Continuous

Spectrometer Model: Optima 4300 DV, S/N 077N3082602 Autosampler Model: AS-93plus

Sample Information File: C:\pe\Administrator\Sample Information\2013\A-025 Rico Argentine\A-025\_1312035\_T

Batch ID: 1312035

Results Data Set: A025\_1312039\_131210B

Results Library: C:\pe\Administrator\Results\Results.mdb

=====  
Sequence No.: 1

Autosampler Location: 3

Sample ID: SEQ-ICV

Date Collected: 12/10/2013 2:41:01 PM

Analyst:

Data Type: Original

Initial Sample Wt:

Initial Sample Vol:

Dilution:

Sample Prep Vol:

User canceled analysis.

=====  
Analysis Begun

Start Time: 12/10/2013 2:41:20 PM

Plasma On Time: 12/10/2013 11:59:25 AM

Logged In Analyst: esat

Technique: ICP Continuous

Spectrometer Model: Optima 4300 DV, S/N 077N3082602 Autosampler Model: AS-93plus

Sample Information File: C:\pe\Administrator\Sample Information\2013\A-025 Rico Argentine\A-025\_1312035\_T

Batch ID: 1312035

Results Data Set: A025\_1312039\_131210B

Results Library: C:\pe\Administrator\Results\Results.mdb

=====  
Sequence No.: 7

Autosampler Location: 26

Sample ID: 1312035-BLK1

Date Collected: 12/10/2013 2:41:20 PM

Analyst: S.VanOvermeiren

Data Type: Original

Initial Sample Wt:

Initial Sample Vol:

Dilution:

Sample Prep Vol:

-----  
Nebulizer Parameters: 1312035-BLK1

Analyte	Back Pressure	Flow
All	194.0 kPa	0.80 L/min

-----  
Mean Data: 1312035-BLK1

Analyte	Mean Corrected Intensity	Conc. Units	Calib	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3868443.3	99.64 %		0.606			0.61%
Sc Radial	417398.0	98.85 %		0.379			0.38%
Ag 328.068†	-12.4	-0.0997 ug/L		0.21631	-0.0997 ug/L	0.21631	217.05%
Al 396.153†	59.9	11.44 ug/L		4.862	11.44 ug/L	4.862	42.52%
As 193.696†	2.1	4.828 ug/L		8.1194	4.828 ug/L	8.1194	168.17%
Ba 233.527†	2.6	0.0704 ug/L		0.20716	0.0704 ug/L	0.20716	294.44%
Be 313.107†	51.4	0.0335 ug/L		0.04154	0.0335 ug/L	0.04154	123.99%
B 249.677†	36.4	1.609 ug/L		0.6488	1.609 ug/L	0.6488	40.32%
Ca 317.933†	26.8	3.238 ug/L		0.9971	3.238 ug/L	0.9971	30.79%
Cd 214.440†	-3.8	-0.1494 ug/L		0.06120	-0.1494 ug/L	0.06120	40.95%
Co 228.616†	5.9	0.3627 ug/L		0.25885	0.3627 ug/L	0.25885	71.36%
Cr 267.716†	9.7	0.4436 ug/L		0.20330	0.4436 ug/L	0.20330	45.83%
Cu 324.752†	-31.0	-0.1373 ug/L		0.12702	-0.1373 ug/L	0.12702	92.53%
Fe 238.204†	3.4	28.17 ug/L		4.163	28.17 ug/L	4.163	14.78%
K 766.490†	55.8	29.24 ug/L		39.546	29.24 ug/L	39.546	135.26%
Mg 285.213†	-19.0	-2.383 ug/L		0.9231	-2.383 ug/L	0.9231	38.74%
Mn 257.610†	80.4	0.1786 ug/L		0.05820	0.1786 ug/L	0.05820	32.58%
Mo 202.031†	-3.0	-1.728 ug/L		4.8835	-1.728 ug/L	4.8835	282.66%
Na 589.592†	63.7	12.85 ug/L		8.510	12.85 ug/L	8.510	66.20%
Ni 231.604†	19.7	1.774 ug/L		2.0477	1.774 ug/L	2.0477	115.44%
Pb 220.353†	6.2	3.269 ug/L		4.4154	3.269 ug/L	4.4154	135.08%
Sb 206.836†	5.1	6.919 ug/L		3.1782	6.919 ug/L	3.1782	45.94%

Se 196.026†	-7.5	-21.12 ug/L	24.208	-21.12 ug/L	24.208 114.60%
SiO2 251.603†	-58.1	-5.725 ug/L	0.5774	-5.725 ug/L	0.5774 10.09%
Sr 421.552†	159.0	0.039 ug/L	0.1181	0.039 ug/L	0.1181 304.09%
Ti 334.940†	45.3	0.106 ug/L	0.0642	0.106 ug/L	0.0642 60.70%
Tl 190.801†	3.0	3.769 ug/L	4.0517	3.769 ug/L	4.0517 107.51%
V 290.880†	1.3	0.005 ug/L	0.5532	0.005 ug/L	0.5532 >999.9%
Zn 206.200†	9.3	0.913 ug/L	0.4498	0.913 ug/L	0.4498 49.26%



Sequence No.: 8

Sample ID: 1312035-SRM1

Analyst: S.VanOvermeiren

Initial Sample Wt:

Dilution:

Autosampler Location: 27

Date Collected: 12/10/2013 2:44:23 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Nebulizer Parameters: 1312035-SRM1

Analyte

Back Pressure

Flow

All

194.0 kPa

0.80 L/min

Mean Data: 1312035-SRM1

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3825225.0	98.53 %	1.173			1.19%
Sc Radial	419346.4	99.31 %	1.698			1.71%
Ag 328.068†	31045.7	249.9 ug/L	1.82	249.9 ug/L	1.82	0.73%
Al 396.153†	5100.4	945.0 ug/L	22.03	945.0 ug/L	22.03	2.33%
As 193.696†	906.2	2060 ug/L	25.8	2060 ug/L	25.8	1.25%
Ba 233.527†	37320.8	1014 ug/L	9.5	1014 ug/L	9.5	0.94%
Be 313.107†	1518750.0	994.9 ug/L	1.70	994.9 ug/L	1.70	0.17%
B 249.677†	22995.0	1016 ug/L	10.0	1016 ug/L	10.0	0.98%
Ca 317.933†	7977.4	909.5 ug/L	16.22	909.5 ug/L	16.22	1.78%
Cd 214.440†	25961.5	1013 ug/L	6.4	1013 ug/L	6.4	0.63%
Co 228.616†	16462.9	1027 ug/L	5.4	1027 ug/L	5.4	0.53%
Cr 267.716†	22341.5	1017 ug/L	5.7	1017 ug/L	5.7	0.56%
Cu 324.752†	212736.7	964.4 ug/L	1.50	964.4 ug/L	1.50	0.16%
Fe 238.204†	103.3	847.8 ug/L	54.41	847.8 ug/L	54.41	6.42%
K 766.490†	9346.0	4716 ug/L	108.5	4716 ug/L	108.5	2.30%
Mg 285.213†	7906.8	985.4 ug/L	21.03	985.4 ug/L	21.03	2.13%
Mn 257.610†	455482.4	1005 ug/L	0.2	1005 ug/L	0.2	0.02%
Mo 202.031†	1716.8	990.9 ug/L	11.07	990.9 ug/L	11.07	1.12%
Na 589.592†	4995.4	925.0 ug/L	30.27	925.0 ug/L	30.27	3.27%
Ni 231.604†	11362.1	1030 ug/L	6.8	1030 ug/L	6.8	0.66%
Pb 220.353†	3842.0	2008 ug/L	12.9	2008 ug/L	12.9	0.64%
Sb 206.836†	1469.8	1989 ug/L	15.7	1989 ug/L	15.7	0.79%
Se 196.026†	342.5	962.3 ug/L	42.00	962.3 ug/L	42.00	4.36%
SiO2 251.603†	52518.8	5122 ug/L	38.4	5122 ug/L	38.4	0.75%
Sr 421.552†	3947611.9	1008 ug/L	10.3	1008 ug/L	10.3	1.02%
Ti 334.940†	430203.4	1004 ug/L	1.4	1004 ug/L	1.4	0.14%
Tl 190.801†	4000.9	5091 ug/L	25.8	5091 ug/L	25.8	0.51%
V 290.880†	75868.9	994.4 ug/L	6.54	994.4 ug/L	6.54	0.66%
Zn 206.200†	10592.4	1030 ug/L	5.8	1030 ug/L	5.8	0.57%

Matrix Recovery Check: 1312035-SRM1

Analyte	Expected Conc.	Measured Conc.	Std. Dev.	Units	Recovery (%)
Al 396.153	1011	945.0	22.035	ug/L	93.4
Ca 317.933	1003	909.5	16.220	ug/L	90.6
Fe 238.204	1028	847.8	54.407	ug/L	82.0
K 766.490	5029	4716	108.472	ug/L	93.7
Mg 285.213	997.6	985.4	21.025	ug/L	98.8
Na 589.592	1013	925.0	30.272	ug/L	91.2
Ag 328.068	249.9	249.9	1.823	ug/L	100.0
As 193.696	2005	2060	25.804	ug/L	102.7
Ba 233.527	1000	1014	9.545	ug/L	101.4
Be 313.107	1000	994.9	1.702	ug/L	99.5
B 249.677	1002	1016	10.004	ug/L	101.4
Cd 214.440	999.9	1013	6.412	ug/L	101.4
Co 228.616	1000	1027	5.403	ug/L	102.6
Cr 267.716	1000	1017	5.676	ug/L	101.7
Cu 324.752	999.9	964.4	1.500	ug/L	96.5
Mn 257.610	1000	1005	0.175	ug/L	100.5
Mo 202.031	998.3	990.9	11.074	ug/L	99.3
Ni 231.604	1002	1030	6.820	ug/L	102.8
Pb 220.353	2003	2008	12.915	ug/L	100.2
Sb 206.836	2007	1989	15.738	ug/L	99.1

Se 196.026	978.9	962.3	42.003	ug/L	98.3
SiO2 251.603	4994	5122	38.442	ug/L	102.6
Sr 421.552	1000	1008	10.262	ug/L	100.8
Ti 334.940	1000	1004	1.360	ug/L	100.4
Tl 190.801	5004	5091	25.759	ug/L	101.7
V 290.880	1000	994.4	6.541	ug/L	99.4
Zn 206.200	1001	1030	5.843	ug/L	102.9

Sequence No.: 9

Sample ID: C131107-02 @10X

Analyst: S.VanOvermeiren

Initial Sample Wt:

Dilution: 10X

Autosampler Location: 28

Date Collected: 12/10/2013 2:47:36 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Nebulizer Parameters: C131107-02 @10X

Analyte	Back Pressure	Flow
All	195.0 kPa	0.80 L/min

Mean Data: C131107-02 @10X

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3808335.7	98.09 %	1.515			1.54%
Sc Radial	411811.1	97.52 %	2.629			2.70%
Ag 328.068†	-63.6	0.2436 ug/L	0.30340	2.436 ug/L	3.0340	124.56%
Al 396.153†	11685.5	2209 ug/L	58.8	22090 ug/L	587.6	2.66%
As 193.696†	1.5	6.566 ug/L	10.5637	65.66 ug/L	105.637	160.89%
Ba 233.527†	1160.6	30.95 ug/L	0.461	309.5 ug/L	4.61	1.49%
Be 313.107†	249.4	0.0963 ug/L	0.05878	0.9627 ug/L	0.58777	61.05%
B 249.677†	-102.6	-4.532 ug/L	1.6894	-45.32 ug/L	16.894	37.28%
Ca 317.933†	227518.4	27450 ug/L	736.9	274500 ug/L	7369.3	2.68%
Cd 214.440†	0.9	0.0286 ug/L	0.00959	0.2856 ug/L	0.09586	33.57%
Co 228.616†	25.3	1.593 ug/L	0.1075	15.93 ug/L	1.075	6.75%
Cr 267.716†	76.1	3.672 ug/L	0.2858	36.72 ug/L	2.858	7.78%
Cu 324.752†	1309.5	6.702 ug/L	0.3192	67.02 ug/L	3.192	4.76%
Fe 238.204†	392.4	3268 ug/L	85.5	32680 ug/L	855.2	2.62%
K 766.490†	2036.7	1078 ug/L	59.5	10780 ug/L	595.4	5.52%
Mg 285.213†	28211.0	3548 ug/L	92.8	35480 ug/L	927.8	2.62%
Mn 257.610†	151789.9	335.0 ug/L	5.92	3350 ug/L	59.2	1.77%
Mo 202.031†	12.8	6.966 ug/L	0.8169	69.66 ug/L	8.169	11.73%
Na 589.592†	7406.0	1484 ug/L	39.0	14840 ug/L	390.2	2.63%
Ni 231.604†	58.2	4.930 ug/L	1.1671	49.30 ug/L	11.671	23.67%
Pb 220.353†	30.7	16.24 ug/L	3.625	162.4 ug/L	36.25	22.32%
Sb 206.836†	3.9	2.494 ug/L	6.5170	24.94 ug/L	65.170	261.29%
Se 196.026†	-3.9	-12.34 ug/L	11.386	-123.4 ug/L	113.86	92.28%
SiO2 251.603†	88494.1	8717 ug/L	152.4	87170 ug/L	1524.0	1.75%
Sr 421.552†	1388108.0	354.2 ug/L	0.80	3542 ug/L	8.0	0.23%
Ti 334.940†	9660.8	22.55 ug/L	0.672	225.5 ug/L	6.72	2.98%
Tl 190.801†	10.1	9.548 ug/L	6.9508	95.48 ug/L	69.508	72.80%
V 290.880†	368.3	3.253 ug/L	0.6825	32.53 ug/L	6.825	20.98%
Zn 206.200†	368.0	35.15 ug/L	0.612	351.5 ug/L	6.12	1.74%

Sequence No.: 10  
 Sample ID: 1312035-DUP1 @10X  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution: 10X

Autosampler Location: 29  
 Date Collected: 12/10/2013 2:50:40 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: 1312035-DUP1 @10X

Analyte Back Pressure Flow  
 All 194.0 kPa 0.80 L/min

## Mean Data: 1312035-DUP1 @10X

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3828856.2	98.62 %	0.368			0.37%
Sc Radial	411471.7	97.44 %	1.684			1.73%
Ag 328.068†	-142.9	-0.3927 ug/L	0.67512	-3.927 ug/L	6.7512	171.93%
Al 396.153†	11602.5	2194 ug/L	36.8	21940 ug/L	368.1	1.68%
As 193.696†	1.0	5.568 ug/L	7.8030	55.68 ug/L	78.030	140.14%
Ba 233.527†	1145.3	30.54 ug/L	0.294	305.4 ug/L	2.94	0.96%
Be 313.107†	114.1	0.0084 ug/L	0.01452	0.0839 ug/L	0.14520	173.13%
B 249.677†	-153.1	-6.764 ug/L	0.2879	-67.64 ug/L	2.879	4.26%
Ca 317.933†	224842.0	27130 ug/L	488.6	271300 ug/L	4886.2	1.80%
Cd 214.440†	-3.7	-0.1508 ug/L	0.10603	-1.508 ug/L	1.0603	70.33%
Co 228.616†	25.2	1.582 ug/L	0.3664	15.82 ug/L	3.664	23.16%
Cr 267.716†	71.7	3.466 ug/L	0.2339	34.66 ug/L	2.339	6.75%
Cu 324.752†	1164.1	6.038 ug/L	0.0291	60.38 ug/L	0.291	0.48%
Fe 238.204†	387.9	3230 ug/L	55.8	32300 ug/L	558.3	1.73%
K 766.490†	1920.4	1017 ug/L	47.3	10170 ug/L	473.4	4.66%
Mg 285.213†	28040.2	3526 ug/L	69.4	35260 ug/L	693.6	1.97%
Mn 257.610†	150285.4	331.7 ug/L	2.12	3317 ug/L	21.2	0.64%
Mo 202.031†	8.5	4.483 ug/L	1.5161	44.83 ug/L	15.161	33.81%
Na 589.592†	7377.1	1479 ug/L	37.9	14790 ug/L	379.0	2.56%
Ni 231.604†	66.9	5.719 ug/L	1.2863	57.19 ug/L	12.863	22.49%
Pb 220.353†	36.7	19.35 ug/L	5.380	193.5 ug/L	53.80	27.80%
Sb 206.836†	2.2	0.1951 ug/L	7.03436	1.951 ug/L	70.3436	>999.9%
Se 196.026†	-3.2	-10.40 ug/L	13.102	-104.0 ug/L	131.02	126.03%
SiO2 251.603†	88424.2	8710 ug/L	62.4	87100 ug/L	624.1	0.72%
Sr 421.552†	1377608.0	351.5 ug/L	0.27	3515 ug/L	2.7	0.08%
Ti 334.940†	9507.0	22.19 ug/L	1.246	221.9 ug/L	12.46	5.61%
Tl 190.801†	7.6	6.414 ug/L	3.7739	64.14 ug/L	37.739	58.84%
V 290.880†	380.9	3.419 ug/L	0.8967	34.19 ug/L	8.967	26.23%
Zn 206.200†	350.9	33.49 ug/L	0.484	334.9 ug/L	4.84	1.45%

## Duplicate Check: 1312035-DUP1 @10X

Analyte	Expected Conc.	Measured Conc.	Std. Dev.	Units	Difference (%)
Sc Radial	97.52	97.44	1.684	%	0.1
Al 396.153	2209	2194	36.815	ug/L	0.7
Ca 317.933	27450	27130	488.620	ug/L	1.2
Fe 238.204	3268	3230	55.826	ug/L	1.2
K 766.490	1078	1017	47.344	ug/L	5.9
Mg 285.213	3548	3526	69.362	ug/L	0.6
Na 589.592	1484	1479	37.896	ug/L	0.4
Sc Axial	98.09	98.62	0.368	%	0.5
Ag 328.068	0.2436	-0.3927	0.675	ug/L	-853.5
As 193.696	6.566	5.568	7.803	ug/L	16.4
Ba 233.527	30.95	30.54	0.294	ug/L	1.3
Be 313.107	0.0963	0.0084	0.015	ug/L	167.9
B 249.677	-4.532	-6.764	0.288	ug/L	-39.5
Cd 214.440	0.0286	-0.1508	0.106	ug/L	-293.5
Co 228.616	1.593	1.582	0.366	ug/L	0.7
Cr 267.716	3.672	3.466	0.234	ug/L	5.8
Cu 324.752	6.702	6.038	0.029	ug/L	10.4
Mn 257.610	335.0	331.7	2.117	ug/L	1.0
Mo 202.031	6.966	4.483	1.516	ug/L	43.4
Ni 231.604	4.930	5.719	1.286	ug/L	14.8

Pb 220.353	16.24	19.35	5.380	ug/L	17.5
Sb 206.836	2.494	0.1951	7.034	ug/L	171.0
Se 196.026	-12.34	-10.40	13.102	ug/L	-17.1
SiO2 251.603	8717	8710	62.409	ug/L	0.1
Sr 421.552	354.2	351.5	0.270	ug/L	0.8
Ti 334.940	22.55	22.19	1.246	ug/L	1.6
Tl 190.801	9.548	6.414	3.774	ug/L	39.3
V 290.880	3.253	3.419	0.897	ug/L	5.0
Zn 206.200	35.15	33.49	0.484	ug/L	4.9

Sequence No.: 11  
 Sample ID: SEQ-SRD1 @50X  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution: 5X

Autosampler Location: 30  
 Date Collected: 12/10/2013 2:53:44 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: SEQ-SRD1 @50X

Analyte Back Pressure Flow  
 All 194.0 kPa 0.80 L/min

## Mean Data: SEQ-SRD1 @50X

Analyte	Mean Corrected Intensity	Conc. Units	Calib	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3832371.8	98.71 %		0.210			0.21%
Sc Radial	404275.3	95.74 %		1.033			1.08%
Ag 328.068†	-11.4	0.0549 ug/L		0.85227	0.2744 ug/L	4.26135	>999.9%
Al 396.153†	2312.7	437.3 ug/L		23.19	2186 ug/L	116.0	5.30%
As 193.696†	0.4	1.639 ug/L		3.2160	8.194 ug/L	16.0798	196.25%
Ba 233.527†	236.6	6.313 ug/L		0.0915	31.57 ug/L	0.457	1.45%
Be 313.107†	56.7	0.0240 ug/L		0.02066	0.1198 ug/L	0.10330	86.20%
B 249.677†	-46.6	-2.057 ug/L		0.4411	-10.28 ug/L	2.206	21.45%
Ca 317.933†	44246.1	5338 ug/L		53.9	26690 ug/L	269.6	1.01%
Cd 214.440†	-4.1	-0.1623 ug/L		0.04254	-0.8117 ug/L	0.21269	26.20%
Co 228.616†	3.0	0.1922 ug/L		0.34418	0.9611 ug/L	1.72092	179.07%
Cr 267.716†	19.1	0.9085 ug/L		0.08730	4.543 ug/L	0.4365	9.61%
Cu 324.752†	177.0	0.9516 ug/L		0.43342	4.758 ug/L	2.1671	45.55%
Fe 238.204†	76.1	633.6 ug/L		23.07	3168 ug/L	115.3	3.64%
K 766.490†	422.5	223.4 ug/L		24.92	1117 ug/L	124.6	11.15%
Mg 285.213†	5530.3	695.5 ug/L		9.95	3477 ug/L	49.8	1.43%
Mn 257.610†	30380.2	67.06 ug/L		0.511	335.3 ug/L	2.55	0.76%
Mo 202.031†	2.5	1.332 ug/L		1.2739	6.659 ug/L	6.3697	95.66%
Na 589.592†	1463.4	293.3 ug/L		8.25	1467 ug/L	41.2	2.81%
Ni 231.604†	20.1	1.753 ug/L		1.5083	8.765 ug/L	7.5414	86.04%
Pb 220.353†	14.7	7.754 ug/L		4.9930	38.77 ug/L	24.965	64.39%
Sb 206.836†	5.5	6.895 ug/L		8.8642	34.47 ug/L	44.321	128.57%
Se 196.026†	-5.8	-16.60 ug/L		5.507	-82.98 ug/L	27.536	33.18%
SiO2 251.603†	17420.5	1716 ug/L		10.2	8580 ug/L	51.2	0.60%
Sr 421.552†	275093.8	70.19 ug/L		0.245	350.9 ug/L	1.23	0.35%
Ti 334.940†	1945.0	4.540 ug/L		0.4982	22.70 ug/L	2.491	10.97%
Tl 190.801†	4.1	4.550 ug/L		9.4826	22.75 ug/L	47.413	208.42%
V 290.880†	81.3	0.757 ug/L		0.3503	3.785 ug/L	1.7517	46.28%
Zn 206.200†	66.7	6.354 ug/L		0.2199	31.77 ug/L	1.099	3.46%

## Dilution Check: SEQ-SRD1 @50X

Analyte	Expected Conc.	Measured Conc.	Std. Dev.	Units	Difference (%)
Sc Radial	19.50	95.74	1.033	%	390.9
Al 396.153	441.8	437.3	23.193	ug/L	1.0
Ca 317.933	5490	5338	53.927	ug/L	2.8
Fe 238.204	653.6	633.6	23.068	ug/L	3.1
K 766.490	215.7	223.4	24.916	ug/L	3.6
Mg 285.213	709.5	695.5	9.955	ug/L	2.0
Na 589.592	296.9	293.3	8.249	ug/L	1.2
Sc Axial	19.62	98.71	0.210	%	403.2
Ag 328.068	0.0487	0.0549	0.852	ug/L	12.7
As 193.696	1.313	1.639	3.216	ug/L	24.8
Ba 233.527	6.190	6.313	0.091	ug/L	2.0
Be 313.107	0.0193	0.0240	0.021	ug/L	24.5
B 249.677	-0.9063	-2.057	0.441	ug/L	-126.9
Cd 214.440	0.0057	-0.1623	0.043	ug/L	2942.3
Co 228.616	0.3186	0.1922	0.344	ug/L	39.7
Cr 267.716	0.7343	0.9085	0.087	ug/L	23.7
Cu 324.752	1.340	0.9516	0.433	ug/L	29.0
Mn 257.610	67.01	67.06	0.511	ug/L	0.1
Mo 202.031	1.393	1.332	1.274	ug/L	4.4
Ni 231.604	0.9860	1.753	1.508	ug/L	77.8

Pb 220.353	3.249	7.754	4.993	ug/L	138.7
Sb 206.836	0.4988	6.895	8.864	ug/L	1282.1
Se 196.026	-2.468	-16.60	5.507	ug/L	-572.6
SiO2 251.603	1743	1716	10.243	ug/L	1.6
Sr 421.552	70.83	70.19	0.245	ug/L	0.9
Ti 334.940	4.510	4.540	0.498	ug/L	0.7
Tl 190.801	1.910	4.550	9.483	ug/L	138.2
V 290.880	0.651	0.757	0.350	ug/L	16.4
Zn 206.200	7.031	6.354	0.220	ug/L	9.6

Sequence No.: 12

Sample ID: 1312035-MS1 @10X

Analyst: S.VanOvermeiren

Initial Sample Wt:

Dilution: 10X

Autosampler Location: 31

Date Collected: 12/10/2013 2:56:46 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Nebulizer Parameters: 1312035-MS1 @10X

Analyte	Back Pressure	Flow
All	195.0 kPa	0.80 L/min

Mean Data: 1312035-MS1 @10X

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3786618.0	97.53 %	1.333			1.37%
Sc Radial	402228.5	95.25 %	2.019			2.12%
Ag 328.068†	761.7	6.959 ug/L	0.2580	69.59 ug/L	2.580	3.71%
Al 396.153†	15059.1	2847 ug/L	65.6	28470 ug/L	655.7	2.30%
As 193.696†	32.7	78.10 ug/L	6.940	781.0 ug/L	69.40	8.89%
Ba 233.527†	1908.0	51.18 ug/L	0.488	511.8 ug/L	4.88	0.95%
Be 313.107†	30096.6	19.64 ug/L	0.072	196.4 ug/L	0.72	0.36%
B 249.677†	478.3	21.13 ug/L	0.736	211.3 ug/L	7.36	3.48%
Ca 317.933†	223941.8	27020 ug/L	665.6	270200 ug/L	6655.7	2.46%
Cd 214.440†	508.1	19.83 ug/L	0.054	198.3 ug/L	0.54	0.27%
Co 228.616†	353.4	22.06 ug/L	0.545	220.6 ug/L	5.45	2.47%
Cr 267.716†	965.5	44.17 ug/L	0.858	441.7 ug/L	8.58	1.94%
Cu 324.752†	7644.9	35.52 ug/L	0.875	355.2 ug/L	8.75	2.46%
Fe 238.204†	432.3	3599 ug/L	101.8	35990 ug/L	1017.6	2.83%
K 766.490†	3918.3	2077 ug/L	47.1	20770 ug/L	471.1	2.27%
Mg 285.213†	29825.9	3750 ug/L	97.5	37500 ug/L	975.1	2.60%
Mn 257.610†	157922.5	348.5 ug/L	0.83	3485 ug/L	8.3	0.24%
Mo 202.031†	72.5	41.32 ug/L	1.526	413.2 ug/L	15.26	3.69%
Na 589.592†	8837.0	1769 ug/L	39.4	17690 ug/L	393.7	2.23%
Ni 231.604†	618.5	55.68 ug/L	2.294	556.8 ug/L	22.94	4.12%
Pb 220.353†	220.4	115.3 ug/L	4.19	1153 ug/L	41.9	3.63%
Sb 206.836†	44.8	57.31 ug/L	3.343	573.1 ug/L	33.43	5.83%
Se 196.026†	68.8	191.2 ug/L	8.12	1912 ug/L	81.2	4.25%
SiO2 251.603†	110493.5	10890 ug/L	4.1	108900 ug/L	41.0	0.04%
Sr 421.552†	1443522.2	368.3 ug/L	1.11	3683 ug/L	11.1	0.30%
Ti 334.940†	21772.9	50.82 ug/L	3.401	508.2 ug/L	34.01	6.69%
Tl 190.801†	161.9	202.2 ug/L	4.17	2022 ug/L	41.7	2.06%
V 290.880†	2720.9	33.99 ug/L	0.438	339.9 ug/L	4.38	1.29%
Zn 206.200†	567.6	54.31 ug/L	0.211	543.1 ug/L	2.11	0.39%

Matrix Recovery Check: 1312035-MS1 @10X

Analyte	Expected Conc.	Measured Conc.	Std. Dev.	Units	Recovery (%)
Al 396.153	4209	2847	65.570	ug/L	31.9
Ca 317.933	28450	27020	665.565	ug/L	-43.4
Fe 238.204	6268	3599	101.755	ug/L	11.0
K 766.490	11080	2077	47.114	ug/L	10.0
Mg 285.213	5548	3750	97.514	ug/L	10.1
Na 589.592	4484	1769	39.369	ug/L	9.5
Ag 328.068	75.24	6.959	0.258	ug/L	9.0
As 193.696	806.6	78.10	6.940	ug/L	8.9
Ba 233.527	230.9	51.18	0.488	ug/L	10.1
Be 313.107	200.1	19.64	0.072	ug/L	9.8
B 249.677	295.5	21.13	0.736	ug/L	8.6
Cd 214.440	200.0	19.83	0.054	ug/L	9.9
Co 228.616	201.6	22.06	0.545	ug/L	10.2
Cr 267.716	403.7	44.17	0.858	ug/L	10.1
Cu 324.752	306.7	35.52	0.875	ug/L	9.6
Mn 257.610	535.0	348.5	0.827	ug/L	6.7
Mo 202.031	407.0	41.32	1.526	ug/L	8.6
Ni 231.604	504.9	55.68	2.294	ug/L	10.1
Pb 220.353	1016	115.3	4.190	ug/L	9.9
Sb 206.836	802.5	57.31	3.343	ug/L	6.9



Se 196.026	1988	191.2	8.125	ug/L	10.2
SiO2 251.603	10720	10890	4.097	ug/L	108.4
Sr 421.552	554.2	368.3	1.108	ug/L	7.1
Ti 334.940	222.6	50.82	3.401	ug/L	14.1
Tl 190.801	2010	202.2	4.166	ug/L	9.6
V 290.880	303.3	33.99	0.438	ug/L	10.2
Zn 206.200	235.2	54.31	0.211	ug/L	9.6

Sequence No.: 13  
 Sample ID: C131107-05  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution:

Autosampler Location: 32  
 Date Collected: 12/10/2013 2:59:50 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: C131107-05

Analyte	Back Pressure	Flow
All	195.0 kPa	0.80 L/min

## Mean Data: C131107-05

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3793265.4	97.70 %	0.247			0.25%
Sc Radial	421006.8	99.70 %	1.683			1.69%
Ag 328.068†	-16.3	0.4233 ug/L	0.48860	0.4233 ug/L	0.48860	115.43%
Al 396.153†	1234.7	227.2 ug/L	12.70	227.2 ug/L	12.70	5.59%
As 193.696†	1.6	3.233 ug/L	1.4610	3.233 ug/L	1.4610	45.20%
Ba 233.527†	2228.8	60.09 ug/L	0.454	60.09 ug/L	0.454	0.76%
Be 313.107†	-155.2	-0.1676 ug/L	0.05730	-0.1676 ug/L	0.05730	34.19%
B 249.677†	-184.1	-8.132 ug/L	0.2096	-8.132 ug/L	0.2096	2.58%
Ca 317.933†	274841.7	33160 ug/L	717.3	33160 ug/L	717.3	2.16%
Cd 214.440†	-8.3	-0.2926 ug/L	0.13495	-0.2926 ug/L	0.13495	46.12%
Co 228.616†	-5.8	-0.2252 ug/L	0.49098	-0.2252 ug/L	0.49098	217.97%
Cr 267.716†	8.0	0.8226 ug/L	0.35477	0.8226 ug/L	0.35477	43.13%
Cu 324.752†	360.2	1.806 ug/L	0.5262	1.806 ug/L	0.5262	29.13%
Fe 238.204†	23.6	191.8 ug/L	1.25	191.8 ug/L	1.25	0.65%
K 766.490†	1216.0	640.2 ug/L	38.03	640.2 ug/L	38.03	5.94%
Mg 285.213†	43580.7	5481 ug/L	115.5	5481 ug/L	115.5	2.11%
Mn 257.610†	7044.2	15.34 ug/L	0.196	15.34 ug/L	0.196	1.28%
Mo 202.031†	8.1	4.285 ug/L	0.4839	4.285 ug/L	0.4839	11.29%
Na 589.592†	11989.1	2410 ug/L	52.1	2410 ug/L	52.1	2.16%
Ni 231.604†	57.5	5.170 ug/L	2.0320	5.170 ug/L	2.0320	39.30%
Pb 220.353†	-7.1	-3.709 ug/L	3.7212	-3.709 ug/L	3.7212	100.32%
Sb 206.836†	3.0	2.078 ug/L	9.7369	2.078 ug/L	9.7369	468.62%
Se 196.026†	-2.1	-7.938 ug/L	12.6051	-7.938 ug/L	12.6051	158.80%
SiO2 251.603†	61524.1	6061 ug/L	89.0	6061 ug/L	89.0	1.47%
Sr 421.552†	1133823.0	289.3 ug/L	1.36	289.3 ug/L	1.36	0.47%
Ti 334.940†	1275.6	2.978 ug/L	0.7479	2.978 ug/L	0.7479	25.12%
Tl 190.801†	8.1	7.980 ug/L	9.9033	7.980 ug/L	9.9033	124.10%
V 290.880†	192.4	1.419 ug/L	0.2270	1.419 ug/L	0.2270	15.99%
Zn 206.200†	27.5	2.165 ug/L	0.5886	2.165 ug/L	0.5886	27.19%

Sequence No.: 14  
 Sample ID: 1312035-MS3  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution:

Autosampler Location: 33  
 Date Collected: 12/10/2013 3:02:53 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: 1312035-MS3

Analyte Back Pressure Flow  
 All 194.0 kPa 0.80 L/min

## Mean Data: 1312035-MS3

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3854745.5	99.29 %	1.100			1.11%
Sc Radial	420847.0	99.66 %	0.827			0.83%
Ag 328.068†	8891.8	72.74 ug/L	1.150	72.74 ug/L	1.150	1.58%
Al 396.153†	11060.9	2079 ug/L	43.1	2079 ug/L	43.1	2.07%
As 193.696†	359.1	817.2 ug/L	3.52	817.2 ug/L	3.52	0.43%
Ba 233.527†	9525.8	257.6 ug/L	2.05	257.6 ug/L	2.05	0.80%
Be 313.107†	302359.8	198.0 ug/L	0.64	198.0 ug/L	0.64	0.32%
B 249.677†	6681.9	295.2 ug/L	2.78	295.2 ug/L	2.78	0.94%
Ca 317.933†	276292.3	33310 ug/L	441.2	33310 ug/L	441.2	1.32%
Cd 214.440†	5021.9	196.1 ug/L	1.71	196.1 ug/L	1.71	0.87%
Co 228.616†	3171.0	198.0 ug/L	0.90	198.0 ug/L	0.90	0.45%
Cr 267.716†	8891.8	405.4 ug/L	2.47	405.4 ug/L	2.47	0.61%
Cu 324.752†	63088.3	286.8 ug/L	2.02	286.8 ug/L	2.02	0.70%
Fe 238.204†	362.0	3005 ug/L	15.5	3005 ug/L	15.5	0.52%
K 766.490†	19282.4	10150 ug/L	80.9	10150 ug/L	80.9	0.80%
Mg 285.213†	58032.8	7295 ug/L	88.4	7295 ug/L	88.4	1.21%
Mn 257.610†	96633.3	212.8 ug/L	1.31	212.8 ug/L	1.31	0.61%
Mo 202.031†	689.8	397.2 ug/L	6.33	397.2 ug/L	6.33	1.59%
Na 589.592†	25998.7	5195 ug/L	71.4	5195 ug/L	71.4	1.38%
Ni 231.604†	5572.5	504.4 ug/L	4.46	504.4 ug/L	4.46	0.88%
Pb 220.353†	1881.1	983.7 ug/L	8.44	983.7 ug/L	8.44	0.86%
Sb 206.836†	584.5	787.4 ug/L	1.58	787.4 ug/L	1.58	0.20%
Se 196.026†	701.5	1966 ug/L	3.7	1966 ug/L	3.7	0.19%
SiO2 251.603†	85564.3	8424 ug/L	46.7	8424 ug/L	46.7	0.55%
Sr 421.552†	1889209.6	482.0 ug/L	0.61	482.0 ug/L	0.61	0.13%
Ti 334.940†	87493.2	204.2 ug/L	1.14	204.2 ug/L	1.14	0.56%
Tl 190.801†	1568.7	1992 ug/L	16.5	1992 ug/L	16.5	0.83%
V 290.880†	22656.2	295.4 ug/L	2.18	295.4 ug/L	2.18	0.74%
Zn 206.200†	2041.3	196.1 ug/L	0.88	196.1 ug/L	0.88	0.45%

## Matrix Recovery Check: 1312035-MS3

Analyte	Expected Conc.	Measured Conc.	Std. Dev.	Units	Recovery (%)
Al 396.153	2227	2079	43.075	ug/L	92.6
Ca 317.933	34160	33310	441.195	ug/L	15.3
Fe 238.204	3192	3005	15.538	ug/L	93.8
K 766.490	10640	10150	80.864	ug/L	95.1
Mg 285.213	7481	7295	88.364	ug/L	90.7
Na 589.592	5410	5195	71.435	ug/L	92.8
Ag 328.068	75.42	72.74	1.150	ug/L	96.4
As 193.696	803.2	817.2	3.524	ug/L	101.7
Ba 233.527	260.1	257.6	2.051	ug/L	98.8
Be 313.107	199.8	198.0	0.638	ug/L	99.1
B 249.677	291.9	295.2	2.785	ug/L	101.1
Cd 214.440	199.7	196.1	1.710	ug/L	98.2
Co 228.616	199.8	198.0	0.896	ug/L	99.1
Cr 267.716	400.8	405.4	2.473	ug/L	101.1
Cu 324.752	301.8	286.8	2.021	ug/L	95.0
Mn 257.610	215.3	212.8	1.307	ug/L	98.7
Mo 202.031	404.3	397.2	6.329	ug/L	98.2
Ni 231.604	505.2	504.4	4.459	ug/L	99.8
Pb 220.353	996.3	983.7	8.441	ug/L	98.7
Sb 206.836	802.1	787.4	1.578	ug/L	98.2

Se 196.026	1992	1966	3.656	ug/L	98.7
SiO2 251.603	8061	8424	46.677	ug/L	118.1
Sr 421.552	489.3	482.0	0.614	ug/L	96.3
Ti 334.940	203.0	204.2	1.138	ug/L	100.6
Tl 190.801	2008	1992	16.457	ug/L	99.2
V 290.880	301.4	295.4	2.179	ug/L	98.0
Zn 206.200	202.2	196.1	0.876	ug/L	96.9

Sequence No.: 15  
 Sample ID: C131107-08  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution:

Autosampler Location: 34  
 Date Collected: 12/10/2013 3:05:59 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: C131107-08

Analyte Back Pressure Flow  
 All 195.0 kPa 0.80 L/min

## Mean Data: C131107-08

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3827296.3	98.58 %	0.187			0.19%
Sc Radial	419384.3	99.32 %	0.485			0.49%
Ag 328.068†	1.6	0.6770 ug/L	0.64530	0.6770 ug/L	0.64530	95.31%
Al 396.153†	1016.6	185.5 ug/L	6.65	185.5 ug/L	6.65	3.59%
As 193.696†	2.6	5.157 ug/L	7.9154	5.157 ug/L	7.9154	153.50%
Ba 233.527†	2364.1	63.67 ug/L	0.167	63.67 ug/L	0.167	0.26%
Be 313.107†	-96.4	-0.1410 ug/L	0.01666	-0.1410 ug/L	0.01666	11.82%
B 249.677†	-163.0	-7.199 ug/L	0.3412	-7.199 ug/L	0.3412	4.74%
Ca 317.933†	321125.3	38750 ug/L	478.2	38750 ug/L	478.2	1.23%
Cd 214.440†	-5.4	-0.1737 ug/L	0.15235	-0.1737 ug/L	0.15235	87.73%
Co 228.616†	-1.8	0.0421 ug/L	0.47110	0.0421 ug/L	0.47110	>999.9%
Cr 267.716†	13.1	1.112 ug/L	0.3603	1.112 ug/L	0.3603	32.39%
Cu 324.752†	311.0	1.609 ug/L	0.1717	1.609 ug/L	0.1717	10.67%
Fe 238.204†	22.0	178.2 ug/L	15.58	178.2 ug/L	15.58	8.74%
K 766.490†	1461.0	765.1 ug/L	15.77	765.1 ug/L	15.77	2.06%
Mg 285.213†	47524.0	5977 ug/L	69.1	5977 ug/L	69.1	1.16%
Mn 257.610†	28770.4	63.29 ug/L	0.473	63.29 ug/L	0.473	0.75%
Mo 202.031†	9.6	5.141 ug/L	2.3909	5.141 ug/L	2.3909	46.50%
Na 589.592†	13371.0	2687 ug/L	36.1	2687 ug/L	36.1	1.34%
Ni 231.604†	43.5	3.909 ug/L	0.3134	3.909 ug/L	0.3134	8.02%
Pb 220.353†	-0.9	-0.4994 ug/L	6.00261	-0.4994 ug/L	6.00261	>999.9%
Sb 206.836†	4.6	3.926 ug/L	3.9489	3.926 ug/L	3.9489	100.59%
Se 196.026†	-0.2	-2.946 ug/L	5.2068	-2.946 ug/L	5.2068	176.71%
SiO2 251.603†	64848.4	6388 ug/L	50.4	6388 ug/L	50.4	0.79%
Sr 421.552†	1421808.4	362.9 ug/L	0.29	362.9 ug/L	0.29	0.08%
Ti 334.940†	878.2	2.050 ug/L	0.1211	2.050 ug/L	0.1211	5.91%
Tl 190.801†	9.6	9.513 ug/L	0.4559	9.513 ug/L	0.4559	4.79%
V 290.880†	103.6	0.028 ug/L	0.6711	0.028 ug/L	0.6711	>999.9%
Zn 206.200†	71.8	6.398 ug/L	0.5290	6.398 ug/L	0.5290	8.27%

Sequence No.: 16  
 Sample ID: Blank  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution:

Autosampler Location: 35  
 Date Collected: 12/10/2013 3:09:03 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: Blank

Analyte Back Pressure Flow  
 All 194.0 kPa 0.80 L/min

## Mean Data: Blank

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3797166.8	97.80 %	0.284			0.29%
Sc Radial	405947.9	96.13 %	1.723			1.79%
Ag 328.068†	-55.9	-0.4465 ug/L	0.80526	-0.4465 ug/L	0.80526	180.36%
Al 396.153†	24.2	4.682 ug/L	24.8691	4.682 ug/L	24.8691	531.12%
As 193.696†	1.9	4.226 ug/L	6.4379	4.226 ug/L	6.4379	152.34%
Ba 233.527†	-1.4	-0.0345 ug/L	0.03624	-0.0345 ug/L	0.03624	105.04%
Be 313.107†	28.4	0.0185 ug/L	0.01901	0.0185 ug/L	0.01901	102.65%
B 249.677†	-68.9	-3.042 ug/L	0.2289	-3.042 ug/L	0.2289	7.53%
Ca 317.933†	19.9	2.439 ug/L	2.4809	2.439 ug/L	2.4809	101.70%
Cd 214.440†	-3.7	-0.1433 ug/L	0.09181	-0.1433 ug/L	0.09181	64.07%
Co 228.616†	1.5	0.0933 ug/L	0.19130	0.0933 ug/L	0.19130	205.08%
Cr 267.716†	2.5	0.1120 ug/L	0.24253	0.1120 ug/L	0.24253	216.63%
Cu 324.752†	-55.5	-0.2479 ug/L	0.33161	-0.2479 ug/L	0.33161	133.75%
Fe 238.204†	4.3	36.20 ug/L	42.248	36.20 ug/L	42.248	116.72%
K 766.490†	58.5	30.64 ug/L	13.835	30.64 ug/L	13.835	45.16%
Mg 285.213†	-10.1	-1.256 ug/L	0.4884	-1.256 ug/L	0.4884	38.90%
Mn 257.610†	-11.6	-0.0235 ug/L	0.03765	-0.0235 ug/L	0.03765	160.09%
Mo 202.031†	-3.7	-2.126 ug/L	0.3249	-2.126 ug/L	0.3249	15.28%
Na 589.592†	-33.2	-6.598 ug/L	9.3727	-6.598 ug/L	9.3727	142.05%
Ni 231.604†	5.7	0.5094 ug/L	1.13653	0.5094 ug/L	1.13653	223.10%
Pb 220.353†	5.8	3.061 ug/L	1.0637	3.061 ug/L	1.0637	34.75%
Sb 206.836†	4.4	6.021 ug/L	7.2741	6.021 ug/L	7.2741	120.82%
Se 196.026†	-11.5	-32.28 ug/L	28.851	-32.28 ug/L	28.851	89.39%
SiO2 251.603†	-33.4	-3.305 ug/L	1.1373	-3.305 ug/L	1.1373	34.42%
Sr 421.552†	1444.3	0.367 ug/L	0.0778	0.367 ug/L	0.0778	21.20%
Ti 334.940†	15.7	0.037 ug/L	0.1052	0.037 ug/L	0.1052	286.69%
Tl 190.801†	5.5	6.967 ug/L	8.8054	6.967 ug/L	8.8054	126.39%
V 290.880†	-16.1	-0.223 ug/L	0.4956	-0.223 ug/L	0.4956	222.57%
Zn 206.200†	-8.5	-0.824 ug/L	0.5954	-0.824 ug/L	0.5954	72.27%

Sequence No.: 17  
 Sample ID: SEQ-CCV  
 Analyst:  
 Initial Sample Wt:  
 Dilution:

Autosampler Location: 3  
 Date Collected: 12/10/2013 3:12:07 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: SEQ-CCV

Analyte Back Pressure Flow  
 All 194.0 kPa 0.80 L/min

## Mean Data: SEQ-CCV

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3774350.0	97.22 %	0.972			1.00%
Sc Radial	410983.2	97.33 %	1.233			1.27%
Ag 328.068†	31360.8	252.9 ug/L	1.95	252.9 ug/L	1.95	0.77%
QC value within limits for Ag 328.068 Recovery = 101.14%						
Al 396.153†	65217.1	12360 ug/L	142.8	12360 ug/L	142.8	1.16%
QC value within limits for Al 396.153 Recovery = 98.85%						
As 193.696†	1126.3	2573 ug/L	20.2	2573 ug/L	20.2	0.78%
QC value within limits for As 193.696 Recovery = 102.90%						
Ba 233.527†	18623.8	504.0 ug/L	3.98	504.0 ug/L	3.98	0.79%
QC value within limits for Ba 233.527 Recovery = 100.80%						
Be 313.107†	768669.0	503.4 ug/L	1.97	503.4 ug/L	1.97	0.39%
QC value within limits for Be 313.107 Recovery = 100.68%						
B 249.677†	113881.3	5030 ug/L	55.1	5030 ug/L	55.1	1.09%
QC value within limits for B 249.677 Recovery = 100.61%						
Ca 317.933†	101475.0	12180 ug/L	116.3	12180 ug/L	116.3	0.95%
QC value within limits for Ca 317.933 Recovery = 97.47%						
Cd 214.440†	13022.7	508.3 ug/L	5.06	508.3 ug/L	5.06	1.00%
QC value within limits for Cd 214.440 Recovery = 101.65%						
Co 228.616†	8157.0	508.7 ug/L	4.67	508.7 ug/L	4.67	0.92%
QC value within limits for Co 228.616 Recovery = 101.74%						
Cr 267.716†	55984.6	2548 ug/L	36.4	2548 ug/L	36.4	1.43%
QC value within limits for Cr 267.716 Recovery = 101.91%						
Cu 324.752†	218243.6	991.0 ug/L	8.77	991.0 ug/L	8.77	0.89%
QC value within limits for Cu 324.752 Recovery = 99.10%						
Fe 238.204†	1422.2	11840 ug/L	198.1	11840 ug/L	198.1	1.67%
QC value within limits for Fe 238.204 Recovery = 94.68%						
K 766.490†	45974.0	24220 ug/L	302.2	24220 ug/L	302.2	1.25%
QC value within limits for K 766.490 Recovery = 96.90%						
Mg 285.213†	98787.0	12420 ug/L	125.6	12420 ug/L	125.6	1.01%
QC value within limits for Mg 285.213 Recovery = 99.34%						
Mn 257.610†	459316.3	1013 ug/L	2.8	1013 ug/L	2.8	0.27%
QC value within limits for Mn 257.610 Recovery = 101.33%						
Mo 202.031†	877.8	504.3 ug/L	4.03	504.3 ug/L	4.03	0.80%
QC value within limits for Mo 202.031 Recovery = 100.86%						
Na 589.592†	60583.4	12100 ug/L	118.4	12100 ug/L	118.4	0.98%
QC value within limits for Na 589.592 Recovery = 96.78%						
Ni 231.604†	28159.8	2548 ug/L	18.4	2548 ug/L	18.4	0.72%
QC value within limits for Ni 231.604 Recovery = 101.92%						
Pb 220.353†	4863.7	2545 ug/L	20.2	2545 ug/L	20.2	0.79%
QC value within limits for Pb 220.353 Recovery = 101.81%						
Sb 206.836†	1888.4	2530 ug/L	40.8	2530 ug/L	40.8	1.61%
QC value within limits for Sb 206.836 Recovery = 101.21%						
Se 196.026†	910.9	2558 ug/L	34.0	2558 ug/L	34.0	1.33%
QC value within limits for Se 196.026 Recovery = 102.34%						
SiO2 251.603†	102469.7	10080 ug/L	108.3	10080 ug/L	108.3	1.07%
QC value within limits for SiO2 251.603 Recovery = 100.84%						
Sr 421.552†	1976637.4	503.7 ug/L	0.90	503.7 ug/L	0.90	0.18%
QC value within limits for Sr 421.552 Recovery = 100.74%						
Ti 334.940†	216631.5	505.7 ug/L	5.15	505.7 ug/L	5.15	1.02%
QC value within limits for Ti 334.940 Recovery = 101.13%						
Tl 190.801†	2021.5	2573 ug/L	29.2	2573 ug/L	29.2	1.13%
QC value within limits for Tl 190.801 Recovery = 102.92%						
V 290.880†	77619.5	1014 ug/L	9.8	1014 ug/L	9.8	0.96%
QC value within limits for V 290.880 Recovery = 101.44%						

Zn 206.200† 26064.1 2547 ug/L 20.7 2547 ug/L 20.7 0.81%

QC value within limits for Zn 206.200 Recovery = 101.90%

All analyte(s) passed QC.





Zn 206.200†      2.0      0.194 ug/L      0.5125      0.194 ug/L      0.5125 264.80%  
QC value within limits for Zn 206.200 Recovery = Not calculated  
All analyte(s) passed QC.

Sequence No.: 19

Sample ID: C131107-10 @10X

Analyst: S.VanOvermeiren

Initial Sample Wt:

Dilution: 10X

Autosampler Location: 36

Date Collected: 12/10/2013 3:18:15 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Nebulizer Parameters: C131107-10 @10X

Analyte

Back Pressure

Flow

All

194.0 kPa

0.80 L/min

Mean Data: C131107-10 @10X

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3832364.9	98.71 %	0.276			0.28%
Sc Radial	407295.3	96.45 %	1.249			1.30%
Ag 328.068†	-43.7	0.2539 ug/L	0.47533	2.539 ug/L	4.7533	187.22%
Al 396.153†	294.0	55.83 ug/L	12.469	558.3 ug/L	124.69	22.33%
As 193.696†	-1.0	-2.609 ug/L	3.5614	-26.09 ug/L	35.614	136.51%
Ba 233.527†	76.7	1.589 ug/L	0.1572	15.89 ug/L	1.572	9.89%
Be 313.107†	83.1	0.0014 ug/L	0.01346	0.0141 ug/L	0.13457	954.14%
B 249.677†	-52.8	-2.331 ug/L	0.5706	-23.31 ug/L	5.706	24.48%
Ca 317.933†	189197.7	22830 ug/L	281.3	228300 ug/L	2813.4	1.23%
Cd 214.440†	65.9	2.578 ug/L	0.1072	25.78 ug/L	1.072	4.16%
Co 228.616†	11.5	0.7789 ug/L	0.67947	7.789 ug/L	6.7947	87.23%
Cr 267.716†	-0.3	0.2630 ug/L	0.20760	2.630 ug/L	2.0760	78.94%
Cu 324.752†	1266.9	5.946 ug/L	0.5228	59.46 ug/L	5.228	8.79%
Fe 238.204†	30.5	251.3 ug/L	55.24	2513 ug/L	552.4	21.98%
K 766.490†	695.8	342.2 ug/L	54.62	3422 ug/L	546.2	15.96%
Mg 285.213†	15996.5	2011 ug/L	22.7	20110 ug/L	227.2	1.13%
Mn 257.610†	91319.5	201.5 ug/L	1.72	2015 ug/L	17.2	0.86%
Mo 202.031†	5.6	3.181 ug/L	1.5059	31.81 ug/L	15.059	47.34%
Na 589.592†	5846.0	1172 ug/L	36.8	11720 ug/L	368.1	3.14%
Ni 231.604†	29.9	2.731 ug/L	0.3719	27.31 ug/L	3.719	13.62%
Pb 220.353†	-2.7	-1.758 ug/L	0.6891	-17.58 ug/L	6.891	39.19%
Sb 206.836†	4.9	4.960 ug/L	8.7110	49.60 ug/L	87.110	175.63%
Se 196.026†	-6.6	-18.74 ug/L	2.890	-187.4 ug/L	28.90	15.42%
SiO2 251.603†	16283.3	1598 ug/L	18.9	15980 ug/L	188.7	1.18%
Sr 421.552†	1509744.5	385.5 ug/L	0.96	3855 ug/L	9.6	0.25%
Ti 334.940†	83.0	0.194 ug/L	0.0747	1.938 ug/L	0.7466	38.52%
Tl 190.801†	4.8	4.221 ug/L	5.6304	42.21 ug/L	56.304	133.41%
V 290.880†	50.7	-0.492 ug/L	0.2822	-4.918 ug/L	2.8218	57.37%
Zn 206.200†	5089.1	497.9 ug/L	1.12	4979 ug/L	11.2	0.23%

Sequence No.: 20

Sample ID: C131107-13 @10X

Analyst: S.VanOvermeiren

Initial Sample Wt:

Dilution: 10X

Autosampler Location: 37

Date Collected: 12/10/2013 3:21:21 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Nebulizer Parameters: C131107-13 @10X

Analyte	Back Pressure	Flow
All	195.0 kPa	0.80 L/min

Mean Data: C131107-13 @10X

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3795137.0	97.75 %	0.740			0.76%
Sc Radial	403812.3	95.63 %	3.197			3.34%
Ag 328.068†	-148.7	-0.5599 ug/L	1.07343	-5.599 ug/L	10.7343	191.71%
Al 396.153†	236.6	45.07 ug/L	12.421	450.7 ug/L	124.21	27.56%
As 193.696†	0.8	1.416 ug/L	6.4756	14.16 ug/L	64.756	457.39%
Ba 233.527†	76.9	1.576 ug/L	0.0823	15.76 ug/L	0.823	5.22%
Be 313.107†	-291.9	-0.2463 ug/L	0.04261	-2.463 ug/L	0.4261	17.30%
B 249.677†	-160.3	-7.079 ug/L	0.8087	-70.79 ug/L	8.087	11.42%
Ca 317.933†	197241.5	23800 ug/L	759.1	238000 ug/L	7591.0	3.19%
Cd 214.440†	59.9	2.345 ug/L	0.2067	23.45 ug/L	2.067	8.82%
Co 228.616†	-2.2	-0.0700 ug/L	0.40829	-0.7004 ug/L	4.08287	582.93%
Cr 267.716†	-0.3	0.2845 ug/L	0.20363	2.845 ug/L	2.0363	71.57%
Cu 324.752†	1027.3	4.857 ug/L	0.2617	48.57 ug/L	2.617	5.39%
Fe 238.204†	23.3	191.1 ug/L	21.34	1911 ug/L	213.4	11.17%
K 766.490†	578.7	279.0 ug/L	9.00	2790 ug/L	90.0	3.23%
Mg 285.213†	16600.6	2087 ug/L	72.2	20870 ug/L	721.5	3.46%
Mn 257.610†	90176.7	199.0 ug/L	0.84	1990 ug/L	8.4	0.42%
Mo 202.031†	2.4	1.356 ug/L	1.9185	13.56 ug/L	19.185	141.51%
Na 589.592†	6064.1	1215 ug/L	38.5	12150 ug/L	384.9	3.17%
Ni 231.604†	47.4	4.331 ug/L	1.6775	43.31 ug/L	16.775	38.74%
Pb 220.353†	-2.2	-1.504 ug/L	2.1271	-15.04 ug/L	21.271	141.43%
Sb 206.836†	9.8	11.49 ug/L	3.600	114.9 ug/L	36.00	31.34%
Se 196.026†	-6.8	-19.52 ug/L	12.600	-195.2 ug/L	126.00	64.56%
SiO2 251.603†	16473.0	1617 ug/L	17.6	16170 ug/L	175.7	1.09%
Sr 421.552†	1569734.0	400.8 ug/L	1.16	4008 ug/L	11.6	0.29%
Ti 334.940†	41.2	0.096 ug/L	0.1111	0.962 ug/L	1.1110	115.51%
Tl 190.801†	1.0	-0.586 ug/L	5.1735	-5.860 ug/L	51.7349	882.92%
V 290.880†	213.4	1.591 ug/L	0.4485	15.91 ug/L	4.485	28.19%
Zn 206.200†	4947.8	484.1 ug/L	3.78	4841 ug/L	37.8	0.78%

Sequence No.: 21

Sample ID: C131107-15 @10X

Analyst: S.VanOvermeiren

Initial Sample Wt:

Dilution: 10X

Autosampler Location: 38

Date Collected: 12/10/2013 3:24:27 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Nebulizer Parameters: C131107-15 @10X

Analyte

Back Pressure

Flow

All

194.0 kPa

0.80 L/min

Mean Data: C131107-15 @10X

Analyte	Mean Corrected		Calib	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc. Units			Conc. Units			
Sc Axial	3842718.0	98.98 %		1.047				1.06%
Sc Radial	421428.2	99.80 %		0.602				0.60%
Ag 328.068†	-92.1	-0.1220 ug/L		0.39877	-1.220 ug/L	3.9877	326.90%	
Al 396.153†	191.9	36.47 ug/L		17.719	364.7 ug/L	177.19	48.59%	
As 193.696†	3.4	7.136 ug/L		3.1295	71.36 ug/L	31.295	43.85%	
Ba 233.527†	81.7	1.716 ug/L		0.0666	17.16 ug/L	0.666	3.88%	
Be 313.107†	-129.3	-0.1391 ug/L		0.08584	-1.391 ug/L	0.8584	61.70%	
B 249.677†	-137.0	-6.051 ug/L		1.3866	-60.51 ug/L	13.866	22.91%	
Ca 317.933†	196233.5	23680 ug/L		188.1	236800 ug/L	1881.2	0.79%	
Cd 214.440†	54.1	2.120 ug/L		0.1132	21.20 ug/L	1.132	5.34%	
Co 228.616†	4.1	0.3295 ug/L		0.57991	3.295 ug/L	5.7991	175.99%	
Cr 267.716†	6.2	0.5874 ug/L		0.15865	5.874 ug/L	1.5865	27.01%	
Cu 324.752†	531.8	2.586 ug/L		0.2163	25.86 ug/L	2.163	8.36%	
Fe 238.204†	7.3	57.68 ug/L		14.734	576.8 ug/L	147.34	25.55%	
K 766.490†	691.7	339.5 ug/L		22.20	3395 ug/L	222.0	6.54%	
Mg 285.213†	17070.6	2146 ug/L		14.9	21460 ug/L	148.6	0.69%	
Mn 257.610†	81278.3	179.4 ug/L		0.94	1794 ug/L	9.4	0.52%	
Mo 202.031†	4.0	2.267 ug/L		2.7951	22.67 ug/L	27.951	123.31%	
Na 589.592†	6092.2	1221 ug/L		10.7	12210 ug/L	107.0	0.88%	
Ni 231.604†	22.4	2.087 ug/L		2.0913	20.87 ug/L	20.913	100.19%	
Pb 220.353†	-1.5	-1.147 ug/L		3.4204	-11.47 ug/L	34.204	298.07%	
Sb 206.836†	2.2	1.296 ug/L		5.9611	12.96 ug/L	59.611	459.84%	
Se 196.026†	-7.3	-20.90 ug/L		2.818	-209.0 ug/L	28.18	13.49%	
SiO2 251.603†	16416.7	1611 ug/L		17.2	16110 ug/L	172.2	1.07%	
Sr 421.552†	1551427.7	396.1 ug/L		0.65	3961 ug/L	6.5	0.16%	
Ti 334.940†	26.4	0.062 ug/L		0.0410	0.617 ug/L	0.4100	66.45%	
Tl 190.801†	4.6	3.963 ug/L		8.0065	39.63 ug/L	80.065	202.04%	
V 290.880†	40.1	-0.635 ug/L		0.4312	-6.355 ug/L	4.3119	67.85%	
Zn 206.200†	4244.8	415.2 ug/L		5.54	4152 ug/L	55.4	1.34%	

Sequence No.: 22  
 Sample ID: C131107-17 @10X  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution: 10X

Autosampler Location: 39  
 Date Collected: 12/10/2013 3:27:31 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: C131107-17 @10X

Analyte Back Pressure Flow  
 All 194.0 kPa 0.80 L/min

## Mean Data: C131107-17 @10X

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3833647.2	98.74 %	0.434			0.44%
Sc Radial	415838.1	98.48 %	1.242			1.26%
Ag 328.068†	-85.4	-0.0354 ug/L	0.15960	-0.3540 ug/L	1.59599	450.89%
Al 396.153†	195.0	36.67 ug/L	5.185	366.7 ug/L	51.85	14.14%
As 193.696†	-2.3	-5.711 ug/L	7.1015	-57.11 ug/L	71.015	124.35%
Ba 233.527†	73.0	1.446 ug/L	0.0571	14.46 ug/L	0.571	3.95%
Be 313.107†	-32.3	-0.0790 ug/L	0.03934	-0.7904 ug/L	0.39337	49.77%
B 249.677†	-155.1	-6.849 ug/L	0.3464	-68.49 ug/L	3.464	5.06%
Ca 317.933†	211555.2	25520 ug/L	320.7	255200 ug/L	3206.5	1.26%
Cd 214.440†	39.3	1.548 ug/L	0.1989	15.48 ug/L	1.989	12.85%
Co 228.616†	2.7	0.2511 ug/L	0.26773	2.511 ug/L	2.6773	106.63%
Cr 267.716†	-4.9	0.1141 ug/L	0.32709	1.141 ug/L	3.2709	286.77%
Cu 324.752†	189.1	1.046 ug/L	0.4119	10.46 ug/L	4.119	39.38%
Fe 238.204†	9.0	71.92 ug/L	13.843	719.2 ug/L	138.43	19.25%
K 766.490†	828.6	412.0 ug/L	25.52	4120 ug/L	255.2	6.19%
Mg 285.213†	19693.8	2476 ug/L	37.0	24760 ug/L	370.3	1.50%
Mn 257.610†	75572.1	166.7 ug/L	2.03	1667 ug/L	20.3	1.22%
Mo 202.031†	4.6	2.611 ug/L	2.6152	26.11 ug/L	26.152	100.16%
Na 589.592†	7420.5	1488 ug/L	26.9	14880 ug/L	269.1	1.81%
Ni 231.604†	44.5	4.074 ug/L	1.2501	40.74 ug/L	12.501	30.68%
Pb 220.353†	-0.7	-0.7011 ug/L	2.06394	-7.011 ug/L	20.6394	294.37%
Sb 206.836†	1.4	0.0635 ug/L	3.52282	0.6347 ug/L	35.22820	>999.9%
Se 196.026†	3.4	9.070 ug/L	11.7933	90.70 ug/L	117.933	130.02%
SiO2 251.603†	18848.8	1851 ug/L	31.4	18510 ug/L	313.7	1.69%
Sr 421.552†	1596593.6	407.6 ug/L	0.61	4076 ug/L	6.1	0.15%
Ti 334.940†	25.5	0.060 ug/L	0.0387	0.596 ug/L	0.3875	65.06%
Tl 190.801†	3.5	2.461 ug/L	7.5961	24.61 ug/L	75.961	308.63%
V 290.880†	38.2	-0.721 ug/L	0.2032	-7.211 ug/L	2.0315	28.17%
Zn 206.200†	3731.0	364.9 ug/L	2.20	3649 ug/L	22.0	0.60%

Sequence No.: 23  
 Sample ID: C131107-20  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution:

Autosampler Location: 40  
 Date Collected: 12/10/2013 3:30:35 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: C131107-20

Analyte Back Pressure Flow  
 All 194.0 kPa 0.80 L/min

## Mean Data: C131107-20

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3790918.4	97.64 %	0.605			0.62%
Sc Radial	419864.5	99.43 %	1.775			1.79%
Ag 328.068†	-136.8	0.1927 ug/L	0.50247	0.1927 ug/L	0.50247	260.69%
Al 396.153†	664.7	118.7 ug/L	5.79	118.7 ug/L	5.79	4.88%
As 193.696†	-2.9	-7.785 ug/L	7.1306	-7.785 ug/L	7.1306	91.60%
Ba 233.527†	2283.3	60.95 ug/L	0.309	60.95 ug/L	0.309	0.51%
Be 313.107†	-123.1	-0.2121 ug/L	0.04772	-0.2121 ug/L	0.04772	22.50%
B 249.677†	-252.4	-11.15 ug/L	0.947	-11.15 ug/L	0.947	8.50%
Ca 317.933†	508729.5	61380 ug/L	1284.9	61380 ug/L	1284.9	2.09%
Cd 214.440†	10.6	0.4654 ug/L	0.07128	0.4654 ug/L	0.07128	15.32%
Co 228.616†	2.6	0.3987 ug/L	0.29257	0.3987 ug/L	0.29257	73.37%
Cr 267.716†	-4.4	0.6495 ug/L	0.33964	0.6495 ug/L	0.33964	52.29%
Cu 324.752†	436.1	2.360 ug/L	0.3743	2.360 ug/L	0.3743	15.86%
Fe 238.204†	21.2	167.9 ug/L	20.77	167.9 ug/L	20.77	12.37%
K 766.490†	2717.3	1410 ug/L	21.5	1410 ug/L	21.5	1.52%
Mg 285.213†	71826.9	9033 ug/L	182.4	9033 ug/L	182.4	2.02%
Mn 257.610†	85885.2	189.3 ug/L	1.72	189.3 ug/L	1.72	0.91%
Mo 202.031†	6.5	3.322 ug/L	1.9134	3.322 ug/L	1.9134	57.60%
Na 589.592†	23907.8	4804 ug/L	105.1	4804 ug/L	105.1	2.19%
Ni 231.604†	66.3	6.065 ug/L	2.2793	6.065 ug/L	2.2793	37.58%
Pb 220.353†	-7.2	-4.301 ug/L	3.8448	-4.301 ug/L	3.8448	89.40%
Sb 206.836†	3.8	0.9074 ug/L	7.93205	0.9074 ug/L	7.93205	874.20%
Se 196.026†	4.2	8.854 ug/L	38.0509	8.854 ug/L	38.0509	429.75%
SiO2 251.603†	94491.0	9303 ug/L	104.5	9303 ug/L	104.5	1.12%
Sr 421.552†	2937639.8	749.9 ug/L	8.23	749.9 ug/L	8.23	1.10%
Ti 334.940†	571.5	1.334 ug/L	0.2224	1.334 ug/L	0.2224	16.67%
Tl 190.801†	1.1	-3.409 ug/L	7.9091	-3.409 ug/L	7.9091	232.00%
V 290.880†	179.2	-0.139 ug/L	0.2304	-0.139 ug/L	0.2304	165.38%
Zn 206.200†	1773.0	172.4 ug/L	1.51	172.4 ug/L	1.51	0.88%

Sequence No.: 24  
 Sample ID: C131107-23 @10X  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution: 10X

Autosampler Location: 41  
 Date Collected: 12/10/2013 3:33:47 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: C131107-23 @10X

Analyte	Back Pressure	Flow
All	194.0 kPa	0.80 L/min

## Mean Data: C131107-23 @10X

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3840800.7	98.93 %	1.150			1.16%
Sc Radial	417936.4	98.97 %	0.557			0.56%
Ag 328.068†	-154.4	0.7800 ug/L	0.27879	7.800 ug/L	2.7879	35.74%
Al 396.153†	19605.9	3710 ug/L	26.8	37100 ug/L	268.5	0.72%
As 193.696†	2.1	12.27 ug/L	7.240	122.7 ug/L	72.40	59.00%
Ba 233.527†	3437.9	92.09 ug/L	0.856	920.9 ug/L	8.56	0.93%
Be 313.107†	1434.5	0.7914 ug/L	0.02069	7.914 ug/L	0.2069	2.61%
B 249.677†	-179.1	-7.912 ug/L	1.3240	-79.12 ug/L	13.240	16.73%
Ca 317.933†	458194.5	55280 ug/L	745.8	552800 ug/L	7457.5	1.35%
Cd 214.440†	16.9	0.6561 ug/L	0.21512	6.561 ug/L	2.1512	32.79%
Co 228.616†	50.5	3.186 ug/L	0.1978	31.86 ug/L	1.978	6.21%
Cr 267.716†	112.3	5.948 ug/L	0.2009	59.48 ug/L	2.009	3.38%
Cu 324.752†	7193.9	34.45 ug/L	0.934	344.5 ug/L	9.34	2.71%
Fe 238.204†	953.6	7942 ug/L	154.3	79420 ug/L	1543.1	1.94%
K 766.490†	5920.1	3117 ug/L	44.6	31170 ug/L	445.6	1.43%
Mg 285.213†	94624.0	11900 ug/L	159.3	119000 ug/L	1592.6	1.34%
Mn 257.610†	106866.9	235.5 ug/L	2.29	2355 ug/L	22.9	0.97%
Mo 202.031†	7.2	3.268 ug/L	0.6439	32.68 ug/L	6.439	19.70%
Na 589.592†	31701.1	6369 ug/L	76.3	63690 ug/L	763.0	1.20%
Ni 231.604†	99.3	8.160 ug/L	0.7771	81.60 ug/L	7.771	9.52%
Pb 220.353†	69.7	36.60 ug/L	1.487	366.0 ug/L	14.87	4.06%
Sb 206.836†	-0.1	-6.562 ug/L	6.3285	-65.62 ug/L	63.285	96.44%
Se 196.026†	4.9	12.44 ug/L	1.678	124.4 ug/L	16.78	13.48%
SiO2 251.603†	172032.5	16940 ug/L	25.2	169400 ug/L	252.1	0.15%
Sr 421.552†	3565051.6	909.7 ug/L	7.21	9097 ug/L	72.1	0.79%
Ti 334.940†	25580.1	59.71 ug/L	1.339	597.1 ug/L	13.39	2.24%
Tl 190.801†	4.8	-0.449 ug/L	3.5382	-4.486 ug/L	35.3820	788.68%
V 290.880†	870.9	7.660 ug/L	0.3579	76.60 ug/L	3.579	4.67%
Zn 206.200†	1426.0	137.4 ug/L	1.83	1374 ug/L	18.3	1.33%



Sequence No.: 25  
 Sample ID: C131107-26 @10X  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution: 10X

Autosampler Location: 42  
 Date Collected: 12/10/2013 3:36:59 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: C131107-26 @10X

Analyte Back Pressure Flow  
 All 194.0 kPa 0.80 L/min

## Mean Data: C131107-26 @10X

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3902451.2	100.5 %	0.97			0.96%
Sc Radial	419146.2	99.26 %	1.830			1.84%
Ag 328.068†	-4.8	1.897 ug/L	0.3518	18.97 ug/L	3.518	18.55%
Al 396.153†	57868.5	10960 ug/L	29.2	109600 ug/L	292.1	0.27%
As 193.696†	9.9	46.82 ug/L	8.734	468.2 ug/L	87.34	18.65%
Ba 233.527†	4005.9	107.9 ug/L	0.27	1079 ug/L	2.7	0.25%
Be 313.107†	2797.1	1.725 ug/L	0.0405	17.25 ug/L	0.405	2.35%
B 249.677†	15.8	0.6988 ug/L	0.79850	6.988 ug/L	7.9850	114.26%
Ca 317.933†	222738.2	26870 ug/L	64.1	268700 ug/L	640.5	0.24%
Cd 214.440†	93.6	3.505 ug/L	0.2297	35.05 ug/L	2.297	6.55%
Co 228.616†	149.6	8.883 ug/L	0.2751	88.83 ug/L	2.751	3.10%
Cr 267.716†	538.9	24.29 ug/L	0.056	242.9 ug/L	0.56	0.23%
Cu 324.752†	15542.6	74.49 ug/L	0.218	744.9 ug/L	2.18	0.29%
Fe 238.204†	2645.2	22050 ug/L	388.9	220500 ug/L	3889.3	1.76%
K 766.490†	6815.4	3632 ug/L	16.1	36320 ug/L	161.2	0.44%
Mg 285.213†	91082.1	11460 ug/L	26.0	114600 ug/L	259.6	0.23%
Mn 257.610†	468932.6	1035 ug/L	3.4	10350 ug/L	33.6	0.32%
Mo 202.031†	11.0	4.344 ug/L	0.2393	43.44 ug/L	2.393	5.51%
Na 589.592†	17631.1	3533 ug/L	10.2	35330 ug/L	102.1	0.29%
Ni 231.604†	228.1	17.70 ug/L	0.842	177.0 ug/L	8.42	4.76%
Pb 220.353†	418.1	222.7 ug/L	3.94	2227 ug/L	39.4	1.77%
Sb 206.836†	3.3	-1.481 ug/L	3.6596	-14.81 ug/L	36.596	247.11%
Se 196.026†	-0.2	0.2976 ug/L	4.02214	2.976 ug/L	40.2214	>999.9%
SiO2 251.603†	199450.2	19650 ug/L	131.0	196500 ug/L	1309.6	0.67%
Sr 421.552†	1688504.2	429.7 ug/L	2.17	4297 ug/L	21.7	0.50%
Ti 334.940†	106870.2	249.5 ug/L	2.25	2495 ug/L	22.5	0.90%
Tl 190.801†	10.3	6.382 ug/L	5.7729	63.82 ug/L	57.729	90.45%
V 290.880†	2361.9	26.73 ug/L	0.452	267.3 ug/L	4.52	1.69%
Zn 206.200†	6494.1	634.1 ug/L	4.02	6341 ug/L	40.2	0.63%

Sequence No.: 26  
 Sample ID: C131107-29 @10X  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution: 10X

Autosampler Location: 43  
 Date Collected: 12/10/2013 3:40:05 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: C131107-29 @10X

Analyte Back Pressure Flow  
 All 195.0 kPa 0.80 L/min

## Mean Data: C131107-29 @10X

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3861783.2	99.47 %	0.776			0.78%
Sc Radial	416593.5	98.66 %	2.023			2.05%
Ag 328.068†	-92.2	-0.0526 ug/L	0.14813	-0.5255 ug/L	1.48134	281.88%
Al 396.153†	1451.0	274.3 ug/L	9.23	2743 ug/L	92.3	3.36%
As 193.696†	2.6	5.603 ug/L	11.9353	56.03 ug/L	119.353	213.02%
Ba 233.527†	160.8	3.849 ug/L	0.2080	38.49 ug/L	2.080	5.40%
Be 313.107†	-75.0	-0.1062 ug/L	0.02639	-1.062 ug/L	0.2639	24.84%
B 249.677†	-164.6	-7.272 ug/L	0.8787	-72.72 ug/L	8.787	12.08%
Ca 317.933†	208678.1	25180 ug/L	208.5	251800 ug/L	2084.9	0.83%
Cd 214.440†	-0.1	0.0038 ug/L	0.08211	0.0383 ug/L	0.82108	>999.9%
Co 228.616†	-4.2	-0.1940 ug/L	0.34655	-1.940 ug/L	3.4655	178.61%
Cr 267.716†	-1.5	0.3452 ug/L	0.32717	3.452 ug/L	3.2717	94.78%
Cu 324.752†	396.4	2.039 ug/L	0.4941	20.39 ug/L	4.941	24.23%
Fe 238.204†	58.1	480.8 ug/L	20.33	4808 ug/L	203.3	4.23%
K 766.490†	724.4	359.4 ug/L	11.09	3594 ug/L	110.9	3.09%
Mg 285.213†	18844.7	2369 ug/L	22.5	23690 ug/L	225.2	0.95%
Mn 257.610†	3837.3	8.326 ug/L	0.1803	83.26 ug/L	1.803	2.17%
Mo 202.031†	3.6	1.961 ug/L	3.8669	19.61 ug/L	38.669	197.14%
Na 589.592†	7191.0	1442 ug/L	16.7	14420 ug/L	166.6	1.16%
Ni 231.604†	14.2	1.286 ug/L	1.7845	12.86 ug/L	17.845	138.79%
Pb 220.353†	3.5	1.620 ug/L	4.2480	16.20 ug/L	42.480	262.15%
Sb 206.836†	0.9	-0.6038 ug/L	5.67444	-6.038 ug/L	56.7444	939.73%
Se 196.026†	-0.8	-2.538 ug/L	13.3527	-25.38 ug/L	133.527	526.12%
SiO2 251.603†	22855.8	2247 ug/L	34.6	22470 ug/L	346.4	1.54%
Sr 421.552†	1554963.9	397.0 ug/L	1.16	3970 ug/L	11.6	0.29%
Ti 334.940†	2288.3	5.341 ug/L	0.3340	53.41 ug/L	3.340	6.25%
Tl 190.801†	1.3	0.000 ug/L	3.7712	0.000 ug/L	37.7125	>999.9%
V 290.880†	152.4	0.787 ug/L	0.7242	7.865 ug/L	7.2421	92.07%
Zn 206.200†	72.3	6.464 ug/L	0.8654	64.64 ug/L	8.654	13.39%

Sequence No.: 27  
 Sample ID: C131107-31 @10X  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution: 10X

Autosampler Location: 44  
 Date Collected: 12/10/2013 3:43:09 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

Nebulizer Parameters: C131107-31 @10X

Analyte Back Pressure Flow  
 All 195.0 kPa 0.80 L/min

Mean Data: C131107-31 @10X

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3873488.0	99.77 %	1.305			1.31%
Sc Radial	422303.7	100.0 %	2.39			2.39%
Ag 328.068†	-62.5	0.2994 ug/L	0.72194	2.994 ug/L	7.2194	241.14%
Al 396.153†	8176.3	1547 ug/L	52.1	15470 ug/L	520.7	3.37%
As 193.696†	-2.6	-3.912 ug/L	5.0784	-39.12 ug/L	50.784	129.81%
Ba 233.527†	1353.7	36.22 ug/L	0.562	362.2 ug/L	5.62	1.55%
Be 313.107†	71.7	-0.0162 ug/L	0.05103	-0.1621 ug/L	0.51027	314.81%
B 249.677†	-129.8	-5.733 ug/L	1.0085	-57.33 ug/L	10.085	17.59%
Ca 317.933†	205665.0	24810 ug/L	582.8	248100 ug/L	5828.4	2.35%
Cd 214.440†	44.4	1.731 ug/L	0.1996	17.31 ug/L	1.996	11.53%
Co 228.616†	10.4	0.6963 ug/L	0.57070	6.963 ug/L	5.7070	81.97%
Cr 267.716†	31.2	1.751 ug/L	0.0702	17.51 ug/L	0.702	4.01%
Cu 324.752†	4080.6	19.05 ug/L	0.812	190.5 ug/L	8.12	4.26%
Fe 238.204†	252.4	2100 ug/L	17.0	21000 ug/L	170.4	0.81%
K 766.490†	1814.4	948.7 ug/L	24.61	9487 ug/L	246.1	2.59%
Mg 285.213†	21743.9	2734 ug/L	68.5	27340 ug/L	685.1	2.51%
Mn 257.610†	68360.7	150.8 ug/L	2.43	1508 ug/L	24.3	1.61%
Mo 202.031†	10.0	5.556 ug/L	0.2474	55.56 ug/L	2.474	4.45%
Na 589.592†	7058.4	1414 ug/L	28.0	14140 ug/L	280.3	1.98%
Ni 231.604†	34.2	2.949 ug/L	1.9763	29.49 ug/L	19.763	67.01%
Pb 220.353†	66.3	34.50 ug/L	2.495	345.0 ug/L	24.95	7.23%
Sb 206.836†	-0.1	-2.770 ug/L	3.7980	-27.70 ug/L	37.980	137.09%
Se 196.026†	3.0	7.664 ug/L	11.6573	76.64 ug/L	116.573	152.10%
SiO2 251.603†	65347.6	6434 ug/L	98.2	64340 ug/L	981.6	1.53%
Sr 421.552†	1625941.4	415.0 ug/L	2.71	4150 ug/L	27.1	0.65%
Ti 334.940†	6687.0	15.61 ug/L	0.481	156.1 ug/L	4.81	3.08%
Tl 190.801†	6.7	5.761 ug/L	6.1652	57.61 ug/L	61.652	107.02%
V 290.880†	308.8	2.545 ug/L	0.8291	25.45 ug/L	8.291	32.57%
Zn 206.200†	692.0	66.88 ug/L	0.527	668.8 ug/L	5.27	0.79%

Sequence No.: 28  
 Sample ID: Blank  
 Analyst: S.VanOvermeiren  
 Initial Sample Wt:  
 Dilution:

Autosampler Location: 45  
 Date Collected: 12/10/2013 3:46:13 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: Blank

Analyte Back Pressure Flow  
 All 194.0 kPa 0.80 L/min

## Mean Data: Blank

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3830535.0	98.66 %	1.067			1.08%
Sc Radial	413561.2	97.94 %	0.698			0.71%
Ag 328.068†	-121.1	-0.9641 ug/L	0.34349	-0.9641 ug/L	0.34349	35.63%
Al 396.153†	42.9	8.135 ug/L	15.4373	8.135 ug/L	15.4373	189.76%
As 193.696†	2.6	6.001 ug/L	1.8865	6.001 ug/L	1.8865	31.43%
Ba 233.527†	5.6	0.1562 ug/L	0.12850	0.1562 ug/L	0.12850	82.28%
Be 313.107†	-308.2	-0.2019 ug/L	0.01782	-0.2019 ug/L	0.01782	8.83%
B 249.677†	-98.1	-4.334 ug/L	1.1836	-4.334 ug/L	1.1836	27.31%
Ca 317.933†	6.2	0.7730 ug/L	0.73633	0.7730 ug/L	0.73633	95.25%
Cd 214.440†	-6.8	-0.2662 ug/L	0.20347	-0.2662 ug/L	0.20347	76.44%
Co 228.616†	4.1	0.2566 ug/L	0.19976	0.2566 ug/L	0.19976	77.85%
Cr 267.716†	2.6	0.1178 ug/L	0.17917	0.1178 ug/L	0.17917	152.03%
Cu 324.752†	136.8	0.6169 ug/L	0.43864	0.6169 ug/L	0.43864	71.10%
Fe 238.204†	-0.1	-1.037 ug/L	21.5557	-1.037 ug/L	21.5557	>999.9%
K 766.490†	-18.4	-10.10 ug/L	52.005	-10.10 ug/L	52.005	514.91%
Mg 285.213†	-3.8	-0.4691 ug/L	1.43395	-0.4691 ug/L	1.43395	305.69%
Mn 257.610†	-18.3	-0.0393 ug/L	0.06371	-0.0393 ug/L	0.06371	161.92%
Mo 202.031†	-0.6	-0.3584 ug/L	1.41185	-0.3584 ug/L	1.41185	393.98%
Na 589.592†	-5.0	-0.9107 ug/L	10.29219	-0.9107 ug/L	10.29219	>999.9%
Ni 231.604†	16.7	1.511 ug/L	1.6753	1.511 ug/L	1.6753	110.85%
Pb 220.353†	-1.1	-0.5820 ug/L	0.44752	-0.5820 ug/L	0.44752	76.90%
Sb 206.836†	3.7	5.088 ug/L	8.4584	5.088 ug/L	8.4584	166.25%
Se 196.026†	-9.8	-27.37 ug/L	2.754	-27.37 ug/L	2.754	10.06%
SiO2 251.603†	108.2	10.69 ug/L	2.890	10.69 ug/L	2.890	27.03%
Sr 421.552†	1381.6	0.353 ug/L	0.1152	0.353 ug/L	0.1152	32.65%
Ti 334.940†	22.2	0.052 ug/L	0.0197	0.052 ug/L	0.0197	37.94%
Tl 190.801†	8.3	10.59 ug/L	9.763	10.59 ug/L	9.763	92.17%
V 290.880†	139.5	1.829 ug/L	0.7590	1.829 ug/L	0.7590	41.50%
Zn 206.200†	-4.9	-0.471 ug/L	0.7090	-0.471 ug/L	0.7090	150.58%

Sequence No.: 29  
 Sample ID: SEQ-CCV  
 Analyst:  
 Initial Sample Wt:  
 Dilution:

Autosampler Location: 3  
 Date Collected: 12/10/2013 3:49:16 PM  
 Data Type: Original  
 Initial Sample Vol:  
 Sample Prep Vol:

## Nebulizer Parameters: SEQ-CCV

Analyte Back Pressure Flow  
 All 194.0 kPa 0.80 L/min

## Mean Data: SEQ-CCV

Analyte	Mean Corrected Intensity	Calib Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
Sc Axial	3868175.4	99.63 %	0.056			0.06%
Sc Radial	417037.1	98.76 %	1.599			1.62%
Ag 328.068†	31423.1	253.4 ug/L	2.61	253.4 ug/L	2.61	1.03%
	QC value within limits for Ag 328.068 Recovery = 101.34%					
Al 396.153†	65913.3	12490 ug/L	101.1	12490 ug/L	101.1	0.81%
	QC value within limits for Al 396.153 Recovery = 99.90%					
As 193.696†	1127.0	2574 ug/L	17.7	2574 ug/L	17.7	0.69%
	QC value within limits for As 193.696 Recovery = 102.97%					
Ba 233.527†	18649.0	504.7 ug/L	1.93	504.7 ug/L	1.93	0.38%
	QC value within limits for Ba 233.527 Recovery = 100.94%					
Be 313.107†	775907.3	508.1 ug/L	1.17	508.1 ug/L	1.17	0.23%
	QC value within limits for Be 313.107 Recovery = 101.62%					
B 249.677†	115184.5	5088 ug/L	53.9	5088 ug/L	53.9	1.06%
	QC value within limits for B 249.677 Recovery = 101.76%					
Ca 317.933†	102041.7	12250 ug/L	63.6	12250 ug/L	63.6	0.52%
	QC value within limits for Ca 317.933 Recovery = 98.02%					
Cd 214.440†	13072.5	510.2 ug/L	3.89	510.2 ug/L	3.89	0.76%
	QC value within limits for Cd 214.440 Recovery = 102.04%					
Co 228.616†	8179.7	510.1 ug/L	6.01	510.1 ug/L	6.01	1.18%
	QC value within limits for Co 228.616 Recovery = 102.03%					
Cr 267.716†	55953.4	2546 ug/L	17.4	2546 ug/L	17.4	0.69%
	QC value within limits for Cr 267.716 Recovery = 101.85%					
Cu 324.752†	219394.7	996.2 ug/L	7.29	996.2 ug/L	7.29	0.73%
	QC value within limits for Cu 324.752 Recovery = 99.62%					
Fe 238.204†	1422.6	11840 ug/L	35.9	11840 ug/L	35.9	0.30%
	QC value within limits for Fe 238.204 Recovery = 94.71%					
K 766.490†	46412.6	24460 ug/L	98.4	24460 ug/L	98.4	0.40%
	QC value within limits for K 766.490 Recovery = 97.83%					
Mg 285.213†	99168.4	12460 ug/L	72.5	12460 ug/L	72.5	0.58%
	QC value within limits for Mg 285.213 Recovery = 99.72%					
Mn 257.610†	458974.6	1013 ug/L	1.6	1013 ug/L	1.6	0.16%
	QC value within limits for Mn 257.610 Recovery = 101.26%					
Mo 202.031†	871.6	500.7 ug/L	1.37	500.7 ug/L	1.37	0.27%
	QC value within limits for Mo 202.031 Recovery = 100.14%					
Na 589.592†	61339.7	12250 ug/L	90.7	12250 ug/L	90.7	0.74%
	QC value within limits for Na 589.592 Recovery = 98.00%					
Ni 231.604†	28240.5	2555 ug/L	14.6	2555 ug/L	14.6	0.57%
	QC value within limits for Ni 231.604 Recovery = 102.21%					
Pb 220.353†	4821.3	2523 ug/L	3.0	2523 ug/L	3.0	0.12%
	QC value within limits for Pb 220.353 Recovery = 100.92%					
Sb 206.836†	1865.7	2499 ug/L	4.7	2499 ug/L	4.7	0.19%
	QC value within limits for Sb 206.836 Recovery = 99.98%					
Se 196.026†	909.6	2555 ug/L	1.4	2555 ug/L	1.4	0.06%
	QC value within limits for Se 196.026 Recovery = 102.19%					
SiO2 251.603†	103351.7	10170 ug/L	82.0	10170 ug/L	82.0	0.81%
	QC value within limits for SiO2 251.603 Recovery = 101.71%					
Sr 421.552†	1995105.4	508.4 ug/L	0.80	508.4 ug/L	0.80	0.16%
	QC value within limits for Sr 421.552 Recovery = 101.69%					
Ti 334.940†	216800.2	506.1 ug/L	4.07	506.1 ug/L	4.07	0.80%
	QC value within limits for Ti 334.940 Recovery = 101.21%					
Tl 190.801†	1995.5	2540 ug/L	17.3	2540 ug/L	17.3	0.68%
	QC value within limits for Tl 190.801 Recovery = 101.60%					
V 290.880†	77683.4	1015 ug/L	8.8	1015 ug/L	8.8	0.87%
	QC value within limits for V 290.880 Recovery = 101.52%					

Zn 206.200† 26238.5 2565 ug/L 20.6 2565 ug/L 20.6 0.80%  
QC value within limits for Zn 206.200 Recovery = 102.58%  
All analyte(s) passed QC.



Zn 206.200† 6.3 0.604 ug/L 0.7092 0.604 ug/L 0.7092 117.41%  
QC value within limits for Zn 206.200 Recovery = Not calculated  
All analyte(s) passed QC.



# Perkin Elmer DRC-II ICP-MS

Project(s): Rio Argentine Nov 2013 Date: 12 / 10 / 2013  
 Work Order(s): C131107 TDF: A-025 Analyst: S. Van Overmeiren

Batch Preparation Information		
Digest / Prep.	Matrix	Batch ID
<u>(TR) Total / (Diss.)</u>	<u>(Water) / Soil / Other</u>	<u>1312040 / 1312035</u>
Data Storage		
Data File: X:/Metals Data Files/ <u>A-025-1312040-DESA 121013</u>		

Standard Information			
Calibration Std. #1: 3020158	Calibration Std. #2: 3020159		
Prepped By: <u>SV</u> Date: <u>09/13/13</u>	Prepped By: <u>SV</u> Date: <u>11/22/13</u>		
Calibration Std. #3: 3020160	ICV	LIMS: 3020164	
Prepped By: <u>SV</u> Date: <u>10/30/13</u>	Prepped By: <u>SV</u> Date: <u>09/18/13</u>		
CRDL: 1:100 of 3020161 LIMS: 3020162	ICV/CCV	LIMS: 3020402	
Prepped By: <u>SV</u> Date: <u>12/10/13</u>	Prepped By: <u>SV</u> Date: <u>11/13/13</u>		
ICSA LIMS: 3020165	ICSAB LIMS: 3020166		

Spike Information	
Dissolved Spikes	Total / Total Rec. Spikes
Sample ID: <u>C131107-04</u>	Sample ID: <u>C131107-02, -05</u>
Sample ID: <u>C131107-07</u>	Sample Vol: <u>50</u> mL
Sample Vol: <u>10</u> mL	PSS2007-220: <u>500</u> uL
	WW-LFS1 Exp: 02-1-2014
Spike	PSS2007-221: <u>500</u> uL
LIMS ID: 3020403 <u>100</u> uL	WW-LFS2 Exp: 02-1-2014

Tune criteria passed?	<u>Yes</u> / No
-----------------------	-----------------

Comments / Maintenance	New pump tubing? Y / <u>N</u>	Cleaned cones? Y / <u>N</u>
Reportable Analytes		
<u>Ag</u> <u>As</u> <u>Ba</u> <u>Be</u> <u>Cd</u> <u>Co</u> <u>Cr</u> <u>Cu</u> <u>Mn</u> <u>Mo</u> <u>Ni</u> <u>Pb</u> <u>Sb</u> <u>Se</u> <u>Ti</u> <u>V</u> <u>Zn</u> <u>U</u> <u>Th</u>		
Sequence ID: <u>1312041 / 1312042</u>		
Lims Entry (Date / Init): <u>12/10/13</u> <u>SV</u>		

TLF-06.03

SOP: QAQ-04.01

Eff. Date: 11/11/2013

## ESAT Region 8

## ICP-MS Data Review Form

## Analyst / Bench Review – Level I

LIMS: C131107

TDF: A-025

Matrix: water

Analysis: Dissolved / Tot Acc Metals

## Method / Instrument QC Parameters

## Analytical Batch / Sample Parameters

☒ Yes  
☐ No

ICV 90-110%

☒ Yes  
☐ No

SCV 90-110%

☐ Yes  
☒ NoMth. Blk. (MB) / Prep. BLK (PB)  $\leq \pm$  PQL☐ Yes  
☒ NoICB  $\leq \pm$  PQL☐ Yes  
☒ No

CRDL 70-130%

☒ Yes  
☐ No

Blk. Spike (BS) 85-115% / LCS/SRM In Control

☒ Yes  
☐ No

ICSA Spiked Analytes 80-120%

☒ Yes  
☐ No

Laboratory Duplicate (DUP) Analyzed

☒ Yes  
☐ NoICSA Non-Spiked Analytes  $\leq \pm$  PQL☒ Yes  
☐ No

Serial Dilution (SRD) Analyzed

☒ Yes  
☐ No

ICSAB Spiked Analytes 80-120%

☒ Yes  
☐ No

MS Analyzed Every 10% of Samples 70-130%

☐ Yes  
☒ NoCCBs  $\leq \pm$  PQL☐ Yes  
☒ No

CCVs 90-110%

☒ Yes  
☐ No

Internal Standards 60-125%

Other data quality issues identified ☒ Yes ☐ No

Describe any anomaly or deficiency not indicated above in the space provided

Selenium recovered high in the CRL. There were no selenium detections. Molybdenum was detected in the F.B. prep blank (batch 1312040) + CCB1. The reporting limit for molybdenum was raised to 1.0 ug/L for batches 1312040 + 1312035. Copper was detected in the prep blank for batch 1312040. The reporting limit for copper was raised to 2.0 ug/L. Thorium recovered high in CCB2. There were no thorium detections.

## LIMS Electronic Data Transfer

☒ Yes  
☐ No

The instrument data file is uploaded to the X: drive

☒ Yes  
☐ No

Instrument data are uploaded into the LIMS

☒ Yes  
☐ No

All samples and QC data are present in LIMS

☒ Yes  
☐ No

The analyte list for the sequence is complete

Analyst: *[Signature]*

Date: 12/11/13

## Peer Review of Analytical Analysis – Level II

## Method / Instrument QC Parameters

## Analytical Batch / Sample Parameters

☒ Yes  
☐ No

ICV 90-110%

☒ Yes  
☐ No

SCV 90-110%

☐ Yes  
☒ NoMth. Blk. (MB) / Prep. BLK (PB)  $\leq \pm$  PQL☐ Yes  
☒ NoICB  $\leq \pm$  PQL☐ Yes  
☒ No

CRDL 70-130%

☒ Yes  
☐ No

Blk. Spike (BS) 85-115% / LCS/SRM In Control

☒ Yes  
☐ No

ICSA Spiked Analytes 80-120%

☒ Yes  
☐ No

Laboratory Duplicate (DUP) Analyzed

☒ Yes  
☐ NoICSA Non-Spiked Analytes  $\leq \pm$  PQL☒ Yes  
☐ No

Serial Dilution (SRD) Analyzed

☒ Yes  
☐ No

ICSAB Spiked Analytes 80-120%

☒ Yes  
☐ No

MS Analyzed Every 10% of Samples 70-130%

☒ Yes  
☐ NoCCBs  $\leq \pm$  PQL☐ Yes  
☒ No

CCVs 90-110%

☒ Yes  
☐ No

Internal Standards 60-125%

Other data quality issues identified ☒ Yes ☐ No

Describe any anomaly or deficiency not indicated above in the space provided

See analyst notes above.

## LIMS Electronic Data Transfer

☒ Yes  
☐ No

The instrument data file is uploaded to the X: drive

☒ Yes  
☐ No

Instrument data are uploaded into the LIMS

☒ Yes  
☐ No

All samples and QC data are present in LIMS

☒ Yes  
☐ No

The analyte list for the sequence is complete

Peer Reviewer: *[Signature]*

Date: 12/11/2013

# PREPARATION BENCH SHEET

1312040

TechLaw, Inc. - ESAT Region 8

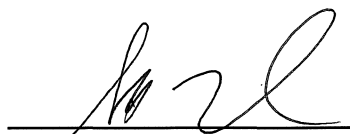
Printed: 12/9/2013 1:27:33PM

Matrix: Water

Date Prepared: 12/09/13 13:26 By: SV

Prepared using: METALS - No Lab Prep Req'd

Lab Number	Analysis	EPA Tag ID	Initial (mL)	Final (mL)	Spike1 ID	ul Spike1	Spike2 ID	ul Spike2	Source ID	QC Code	Extraction Comments
C131107-01 A	ICPMS Diss. Metals	8-A	50	50						CHV-101U	107
C131107-04 A	ICPMS Diss. Metals	8-A	50	50						DR-1	
C131107-07 A	ICPMS Diss. Metals	8-A	50	50						DR-2	
C131107-09 A	ICPMS Diss. Metals	8-A	50	50						DR-3	107
C131107-12 A	ICPMS Diss. Metals	8-A	50	50						DR-4	
C131107-14 A	ICPMS Diss. Metals	8-A	50	50						DR-5	
C131107-16 A	ICPMS Diss. Metals	8-A	50	50						DR-6	
C131107-19 A	ICPMS Diss. Metals	8-A	50	50						DR-7	
C131107-22 A	ICPMS Diss. Metals	8-A	50	50						MW-109S	107
C131107-25 A	ICPMS Diss. Metals	8-A	50	50						MW-110	
C131107-28 A	ICPMS Diss. Metals	8-A	50	50						MW-2D	
C131107-30 A	ICPMS Diss. Metals	8-A	50	50						MW-3D	
1312040-BLK1	QC		50	50						Blank	
1312040-BS1	QC		10	10	3020403	100				LCS	
1312040-DUP1	QC		50	50					C131107-04	Duplicate	
1312040-MS1	QC		10	10	3020403	100			C131107-04	Matrix Spike	
1312040-MS2	QC		10	10	3020403	100			C131107-07	Matrix Spike	

 12/10/13  
Preparation Reviewed By Date

# PREPARATION BENCH SHEET

1312035

TechLaw, Inc. - ESAT Region 8

Printed: 12/9/2013 8:11:36AM

Matrix: Water

Date Prepared: 12/09/13 08:09 By: SV

Prepared using: METALS - 200.2 - TR Metals

Lab Number	Analysis	EPA Tag ID	Initial (mL)	Final (mL)	Spike1 ID	ul Spike1	Spike2 ID	ul Spike2	Source ID	QC Code	Extraction Comments
C131107-02 A	ICPMS Tot. Rec. Metals	8-B	50	50						CHV-101U	104
C131107-05 A	ICPMS Tot. Rec. Metals	8-B	50	50						DR-1	
C131107-08 A	ICPMS Tot. Rec. Metals	8-B	50	50						DR-2	
C131107-10 A	ICPMS Tot. Rec. Metals	8-B	50	50						DR-3	104
C131107-13 A	ICPMS Tot. Rec. Metals	8-B	50	50						DR-4	
C131107-15 A	ICPMS Tot. Rec. Metals	8-B	50	50						DR-5	
C131107-17 A	ICPMS Tot. Rec. Metals	8-B	50	50						DR-6	✓
C131107-20 A	ICPMS Tot. Rec. Metals	8-B	50	50						DR-7	○
C131107-23 A	ICPMS Tot. Rec. Metals	8-B	50	50						MW-109S	104
C131107-26 A	ICPMS Tot. Rec. Metals	8-B	50	50						MW-110	
C131107-29 A	ICPMS Tot. Rec. Metals	8-B	50	50						MW-2D	
C131107-31 A	ICPMS Tot. Rec. Metals	8-B	50	50						MW-3D	✓
C131107-02 A	ICPOE Tot. Rec. Metals	8-B	50	50						CHV-101U	
C131107-05 A	ICPOE Tot. Rec. Metals	8-B	50	50						DR-1	
C131107-08 A	ICPOE Tot. Rec. Metals	8-B	50	50						DR-2	
C131107-10 A	ICPOE Tot. Rec. Metals	8-B	50	50						DR-3	
C131107-13 A	ICPOE Tot. Rec. Metals	8-B	50	50						DR-4	
C131107-15 A	ICPOE Tot. Rec. Metals	8-B	50	50						DR-5	
C131107-17 A	ICPOE Tot. Rec. Metals	8-B	50	50						DR-6	
C131107-20 A	ICPOE Tot. Rec. Metals	8-B	50	50						DR-7	
C131107-23 A	ICPOE Tot. Rec. Metals	8-B	50	50						MW-109S	
C131107-26 A	ICPOE Tot. Rec. Metals	8-B	50	50						MW-110	
C131107-29 A	ICPOE Tot. Rec. Metals	8-B	50	50						MW-2D	
C131107-31 A	ICPOE Tot. Rec. Metals	8-B	50	50						MW-3D	

Preparation Reviewed By

Date

# PREPARATION BENCH SHEET

1312035

TechLaw, Inc. - ESAT Region 8

Printed: 12/9/2013 8:11:36AM

Matrix: Water

Date Prepared: 12/09/13 08:09 By: SV

Prepared using: METALS - 200.2 - TR Metals

Lab Number	Analysis	EPA Tag ID	Initial (mL)	Final (mL)	Spike1 ID	ul Spike1	Spike2 ID	ul Spike2	Source ID	QC Code	Extraction Comments
1312035-BLK1	QC		50	50						Blank	
1312035-BLK2	QC		50	50						Blank	
1312035-DUP1	QC		50	50					C131107-02	Duplicate	
1312035-DUP2	QC		50	50					C131107-02	Duplicate	
1312035-MS1	QC		50	50	3020135	500	3020136	500	C131107-02	Matrix Spike	
1312035-MS2	QC		50	50	3020135	500	3020136	500	C131107-02	Matrix Spike	
1312035-MS3	QC		50	50	3020135	500	3020136	500	C131107-05	Matrix Spike	
1312035-MS4	QC		50	50	3020135	500	3020136	500	C131107-05	Matrix Spike	
1312035-SRM1	QC		50	50	3020145	500	3020146	500		Reference	
1312035-SRM2	QC		50	50	3020145	500	3020146	500		Reference	

## ANALYSIS SEQUENCE

1312041

12/10/13

Instrument: ICPMS-PE DRC-II

Sequence Date: 12/10/13 00:00

Printed: 12/10/2013 1:56:47PM

Lab Number	Dilut. Factor	Analysis	STD ID	Sample/Std Name	EPA Tag ID	Source Sple	Comments
1312041-ICV1		QC	3091901	Initial Cal Check		-	
1312041-SCV1		QC	3020164	Secondary Cal Check		-	
1312041-ICB1		QC		Initial Cal Blank		-	
1312041-CRL1		QC	3020163	Instrument RL Check		-	
1312041-IFA1		QC	3020165	Interference Check A		-	
1312041-IFB1		QC	3020166	Interference Check B		-	
1312040-BLK1		QC		Blank		-	
C131107-04 A		ICPMS Diss. Metals		DR-1	8-A		
1312040-DUP1		QC		Duplicate		C131107-04	
1312041-SRD1		QC		Serial Dilution		C131107-04	
1312040-BS1		QC		LCS		-	
1312040-MS1		QC		Matrix Spike		C131107-04	
C131107-07 A		ICPMS Diss. Metals		DR-2	8-A		
1312040-MS2		QC		Matrix Spike		C131107-07	
C131107-01 A		ICPMS Diss. Metals		CHV-101U	8-A		
1312041-CCV1		QC	3020402	Calibration Check		-	
1312041-CCB1		QC		Calibration Blank		-	
C131107-09 A		ICPMS Diss. Metals		DR-3	8-A		
C131107-12 A		ICPMS Diss. Metals		DR-4	8-A		
C131107-14 A		ICPMS Diss. Metals		DR-5	8-A		
C131107-16 A		ICPMS Diss. Metals		DR-6	8-A		
C131107-19 A		ICPMS Diss. Metals		DR-7	8-A		
C131107-22 A		ICPMS Diss. Metals		MW-109S	8-A		
C131107-25 A		ICPMS Diss. Metals		MW-110	8-A		
C131107-28 A		ICPMS Diss. Metals		MW-2D	8-A		
C131107-30 A		ICPMS Diss. Metals		MW-3D	8-A		
1312041-CCV2		QC	3020402	Calibration Check		-	
1312041-CCB2		QC		Calibration Blank		-	

## ANALYSIS SEQUENCE

1312042

w/12/10/13

Instrument: ICPMS-PE DRC-II

Sequence Date: 12/10/13 00:00

Printed: 12/10/2013 1:59:44PM

Lab Number	Dilut. Factor	Analysis	STD ID	Sample/Std Name	EPA Tag ID	Source Sple	Comments
1312042-ICV1		QC	3091901	Initial Cal Check		-	
1312042-SCV1		QC	3020164	Secondary Cal Check		-	
1312042-ICB1		QC		Initial Cal Blank		-	
1312042-CRL1		QC	3020163	Instrument RL Check		-	
1312042-IFA1		QC	3020165	Interference Check A		-	
1312042-IFB1		QC	3020166	Interference Check B		-	
1312042-CCV1		QC	3020402	Calibration Check		-	
1312042-CCB1		QC		Calibration Blank		-	
1312042-CCV2		QC	3020402	Calibration Check		-	
1312042-CCB2		QC		Calibration Blank		-	
1312035-BLK2		QC		Blank		-	
C131107-02 A		ICPMS Tot. Rec. Metals		CHV-101U	8-B		
1312035-DUP2		QC		Duplicate		C131107-02	
1312042-SRD1		QC		Serial Dilution		C131107-02	
1312035-SRM2		QC		Reference		-	
1312035-MS2		QC		Matrix Spike		C131107-02	
C131107-05 A		ICPMS Tot. Rec. Metals		DR-1	8-B		
1312035-MS4		QC		Matrix Spike		C131107-05	
C131107-08 A		ICPMS Tot. Rec. Metals		DR-2	8-B		
1312042-CCV3		QC	3020402	Calibration Check		-	
1312042-CCB3		QC		Calibration Blank		-	
C131107-10 A		ICPMS Tot. Rec. Metals		DR-3	8-B		
C131107-13 A		ICPMS Tot. Rec. Metals		DR-4	8-B		
C131107-15 A		ICPMS Tot. Rec. Metals		DR-5	8-B		
C131107-17 A		ICPMS Tot. Rec. Metals		DR-6	8-B		
C131107-20 A		ICPMS Tot. Rec. Metals		DR-7	8-B		
C131107-23 A		ICPMS Tot. Rec. Metals		MW-109S	8-B		
C131107-26 A		ICPMS Tot. Rec. Metals		MW-110	8-B		
C131107-29 A		ICPMS Tot. Rec. Metals		MW-2D	8-B		
C131107-31 A		ICPMS Tot. Rec. Metals		MW-3D	8-B		
1312042-CCV4		QC	3020402	Calibration Check		-	
1312042-CCB4		QC		Calibration Blank		-	

# Run List

Sample File Name: 1312040\_DISSA\_121013.sam

*12/10/13*

AS Loc.	Sample ID	Batch Index	Sample Type	Method
1	Blank		Blank	esat2010.mth
2	Standard 1		Standard	esat2010.mth
3	Standard 2		Standard	esat2010.mth
4	Standard 3		Standard	esat2010.mth
6	SEQ-ICV		QC Std	esat2010.mth
5	SEQ-SCV		QC Std	esat2010.mth
1	SEQ-ICB		QC Std	esat2010.mth
26	SEQ-CRL		QC Std	esat2010.mth
7	SEQ-IFA		QC Std	esat2010.mth
8	SEQ-IFB		QC Std	esat2010.mth
27	1312040-BLK1	1	Sample	esat2010.mth
28	C131107-04	2	Sample	esat2010.mth
29	1312040-DUP1	3	Duplicate of 2	esat2010.mth
30	SEQ-SRD1 @5X	4	Dilution - DF:5 of 2	esat2010.mth
31	1312040-BS1	5	Spike - 3 of 1	esat2010.mth
32	1312040-MS1	6	Spike - 3 of 2	esat2010.mth
33	C131107-07	7	Sample	esat2010.mth
34	1312040-MS2	8	Spike - 3 of 7	esat2010.mth
35	C131107-01 @10X	9	Sample	esat2010.mth
36	Blank	10	Sample	esat2010.mth
6	SEQ-CCV		QC Std	esat2010.mth
1	SEQ-CCB		QC Std	esat2010.mth
37	C131107-09 <i>010X</i>	11	Sample	esat2010.mth
38	C131107-12	12	Sample	esat2010.mth
39	C131107-14	13	Sample	esat2010.mth
40	C131107-16	14	Sample	esat2010.mth
41	C131107-19	15	Sample	esat2010.mth
42	C131107-22 <i>@10X</i>	16	Sample	esat2010.mth
43	C131107-25	17	Sample	esat2010.mth
44	C131107-28	18	Sample	esat2010.mth
45	C131107-30	19	Sample	esat2010.mth
46	Blank	20	Sample	esat2010.mth
6	SEQ-CCV <i>2</i>		QC Std	esat2010.mth
1	SEQ-CCB <i>2</i>		QC Std	esat2010.mth



# Run List

Sample File Name: 1312035\_TRA\_121013.sam

12/10/13

AS Loc.	Sample ID	Batch Index	Sample Type	Method
27	1312035-BLK2 @5X	1	Sample	esat2010.mth
28	C131107-02 @10X	2	Sample	esat2010.mth
29	1312035-DUP2 @10X	3	Duplicate of 2	esat2010.mth
30	SEQ-SRD1 @50X	4	Dilution - DF:5 of 2	esat2010.mth
31	1312035-SRM2 @20X	5	Spike - 1 of 1	esat2010.mth
32	1312035-MS2 @10X	6	Spike - 2 of 2	esat2010.mth
33	C131107-05 @5X	7	Sample	esat2010.mth
34	1312035-MS4 @5X	8	Spike - 2 of 7	esat2010.mth
35	C131107-08 @5X	9	Sample	esat2010.mth
36	Blank	10	Sample	esat2010.mth
6	SEQ-CCV }		QC Std	esat2010.mth
1	SEQ-CCB }		QC Std	esat2010.mth
37	C131107-10 @10X	11	Sample	esat2010.mth
38	C131107-13 @10X	12	Sample	esat2010.mth
39	C131107-15 @10X	13	Sample	esat2010.mth
40	C131107-17 @10X	14	Sample	esat2010.mth
41	C131107-20 @5X	15	Sample	esat2010.mth
42	C131107-23 @10X	16	Sample	esat2010.mth
43	C131107-26 @10X	17	Sample	esat2010.mth
44	C131107-29 @10X	18	Sample	esat2010.mth
45	C131107-31 @10X	19	Sample	esat2010.mth
46	blank	20	Sample	esat2010.mth
6	SEQ-CCV 4		QC Std	esat2010.mth
1	SEQ-CCB 4		QC Std	esat2010.mth

## Instrument Tuning Report

File Name: ESAT tuning 2010.tun

File Path: C:\Elandata\Tuning\ESAT tuning 2010.tun

*12/10/13*

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
C	12.000	12.025	2736	2057	0.752	
Mg	23.985	23.975	5638	2051	0.756	
In	114.904	114.875	27732	2011	0.752	
Ce	139.905	139.875	33820	2004	0.756	
Pb	207.977	207.925	50377	1988	0.757	
U	238.050	238.125	57706	1967	0.761	
Zn	65.926	65.925	15826	2033	0.753	

## Daily Performance Report

### Sample ID: Daily Performance Check

Sample Date/Time: Tuesday, December 10, 2013 08:26:18

Sample Description:

Method File: C:\Elandata\Method\ESAT Daily Performance 2010.mth

Dataset File: C:\Elandata\DataSet\Default\Daily Performance Check.46452

Tuning File: C:\Elandata\Tuning\ESAT tuning 2010.tun

Optimization File: C:\Elandata\Optimize\ESAT optimization 2010.dac

Dual Detector Mode: Pulse

Acq. Dead Time(ns): 80

Current Dead Time (ns): 80

*12/10/13*

### Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Net Intens. SD	Net Intens. RSD
Mg	24.0	10938.3	10938.298	119.067	1.1
In	114.9	111024.3	111024.271	1319.208	1.2
U	238.1	34483.1	34483.138	305.806	0.9
[> Ce	139.9	92318.8	92318.777	594.719	0.6
[ CeO	155.9	2363.7	0.026	0.000	1.0
[> Ba	137.9	71451.1	71451.074	598.443	0.8
[ Ba++	69.0	1107.6	0.016	0.000	2.0
Bkgd	220.0	0.7	0.700	0.361	51.6
Bkgd	8.5	25.4	25.367	1.406	5.5

### Current Optimization File Data

Current Value	Description
0.58	Nebulizer Gas Flow [NEB]
1.20	Auxiliary Gas Flow
17.00	Plasma Gas Flow
7.25	Lens Voltage
1200.00	ICP RF Power
-1637.00	Analog Stage Voltage
900.00	Pulse Stage Voltage
0.00	Quadrupole Rod Offset Std [QRO]
-15.00	Cell Rod Offset Std [CRO]
22.00	Discriminator Threshold
-14.00	Cell Path Voltage Std [CPV]
0.00	RPa
0.25	RPq
0.82	DRC Mode NEB
-10.00	DRC Mode QRO
-1.00	DRC Mode CRO
-5.00	DRC Mode CPV
0.00	Cell Gas A
0.00	Cell Gas B

### Current Autolens Data

Analyte	Mass	Num of Pts	DAC Value	Maximum Intensity
Be	9	45	3.0	612.0
Co	59	45	6.8	42526.2
In	115	45	8.0	120413.9

## SmartTune Wizard - Summary

### Optimization Summary

SmartTune file: C:\Elandata\Wizard\SmartTune\ESAT Smart Tune 2010.swz

Start Time: 12/10/2013 8:07:08 AM

End Time: 12/10/2013 8:30:01 AM

Mass Calibration and Resolution - [Passed] Optimum value(s): N/A

Target/Obtained mass (12/12.025), Target/Obtained resolution (0.75/0.752)

Target/Obtained mass (23.985/23.975), Target/Obtained resolution (0.75/0.756)

Target/Obtained mass (114.904/114.875), Target/Obtained resolution (0.75/0.752)

Target/Obtained mass (139.905/139.875), Target/Obtained resolution (0.75/0.756)

Target/Obtained mass (207.977/207.925), Target/Obtained resolution (0.75/0.757)

Target/Obtained mass (238.05/238.125), Target/Obtained resolution (0.75/0.761)

Target/Obtained mass (65.926/65.925), Target/Obtained resolution (0.75/0.753)

Nebulizer Gas Flow [NEB] - [Passed] Optimum value(s): 0.58

Obtained Intensity (In 114.904): 129305

Obtained Formula (CeO 155.9 / Ce 139.905): 0.025 (=3082 / 121009)

Lens Voltage - [Passed] Optimum value(s): 7.25

Obtained Intensity (In 114.904): 128454

AutoLens - [Passed] Optimum value(s):  $y = 0.047 x + 3.069$

Daily Performance Check - [Passed] Optimum value(s): N/A

Obtained Intensity (Mg 23.985): 10938

Obtained Intensity (In 114.904): 111024

Obtained Intensity (Bkgd 220): 1

Obtained Formula (CeO 155.9 / Ce 139.905): 0.026 (=2364 / 92319)

Obtained Formula (Ba++ 68.9525 / Ba 137.905): 0.015 (=1108 / 71712)

## SmartTune Wizard - Details

### Optimization Details

SmartTune file: C:\Elandata\Wizard\SmartTune\ESAT Smart Tune 2010.swz

### Optimization Status

Start Time: 12/10/2013 8:07:08 AM

### Mass Calibration and Resolution

#### Optimization Settings:

Method: C:\Elandata\Method\ESAT Tuning 2010.mth.

Tuning File: C:\Elandata\Tuning\ESAT tuning 2010.tun

Iterations: 6

Target accuracy (+/- amu): 0.1 for Mass Cal. and 0.1 for Resolution

Peak height (%) for Res. Opt.: 10

#### Optimization Results:

##### Initial Try

Target/Obtained mass (12/12.025), Target/Obtained resolution (0.75/0.752)

Target/Obtained mass (23.985/23.975), Target/Obtained resolution (0.75/0.756)

Target/Obtained mass (114.904/114.875), Target/Obtained resolution (0.75/0.752)

Target/Obtained mass (139.905/139.875), Target/Obtained resolution (0.75/0.756)

Target/Obtained mass (207.977/207.925), Target/Obtained resolution (0.75/0.757)

Target/Obtained mass (238.05/238.125), Target/Obtained resolution (0.75/0.761)

Target/Obtained mass (65.926/65.925), Target/Obtained resolution (0.75/0.753)

[Passed] Optimum value(s): N/A

### Nebulizer Gas Flow [NEB]

#### Optimization Settings:

Method: C:\Elandata\Method\ESAT Optimize 2010.mth.

Initial Try - Start/End/Step: 0.56/0.8/0.01.

Intensity Criterion: In 114.904 Maximum

Formula Criterion: CeO 155.9 / Ce 139.905 <= 0.029

#### Optimization Results:

##### Initial Try

Obtained Intensity (In 114.904): 129305

Obtained Formula (CeO 155.9 / Ce 139.905): 0.025 (=3082 / 121009)

[Passed] Optimum value(s): 0.58

### Lens Voltage

#### Optimization Settings:

Method: C:\Elandata\Method\ESAT Optimize 2010.mth.

Initial Try - Start/End/Step: 4/7.5/0.25.

Intensity Criterion: In 114.904 Maximum

#### Optimization Results:

##### Initial Try

Obtained Intensity (In 114.904): 128454

[Passed] Optimum value(s): 7.25

### AutoLens

#### Optimization Settings:

Method: C:\Elandata\Method\ESAT AutoLens Calibration 2010.mth.

Initial Try - Start/End/Step: 1.5/12.5/0.25.

#### Optimization Results:

##### Initial Try

[Passed] Optimum value(s):  $y = 0.047x + 3.069$

Analyte	Mass	Points	DAC	MaxIntensity
Be	9.012	45	3	612.03
Co	58.933	45	6.75	42526.2
In	114.904	45	8	120414

#### Daily Performance Check

##### Optimization Settings:

Method: C:\Elandata\Method\ESAT Daily Performance 2010.mth.  
Intensity Criterion: Mg 23.985 > 10000  
Intensity Criterion: In 114.904 > 100000  
Intensity Criterion: Bkgd 220 <= 30  
Formula Criterion: CeO 155.9 / Ce 139.905 <= 0.03  
Formula Criterion: Ba++ 68.9525 / Ba 137.905 <= 0.03

##### Optimization Results:

###### Initial Try

Obtained Intensity (Mg 23.985): 10938  
Obtained Intensity (In 114.904): 111024  
Obtained Intensity (Bkgd 220): 1  
Obtained Formula (CeO 155.9 / Ce 139.905): 0.026 (=2364 / 92319)  
Obtained Formula (Ba++ 68.9525 / Ba 137.905): 0.015 (=1108 / 71712)

[Passed] Optimum value(s): N/A

End Time: 12/10/2013 8:30:01 AM

## Method 200.8 - Summary Report

### Sample ID: Blank

Sample Date/Time: Tuesday, December 10, 2013 10:27:47

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID:

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\Blank.46466

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	7653.017	1.876				ug/L
[	Be	9	7.778	44.607				ug/L
[	Al	27	2457.151	6.555				ug/L
>	Sc	45	121504.446	5.749				ug/L
	V	51	-2754.445	26.410				ug/L
	Cr	52	6346.558	4.335				ug/L
	Mn	55	1833.559	18.430				ug/L
	Co	59	42.778	14.750				ug/L
	Ni	60	73.656	21.895				ug/L
[	Cu	65	202.781	0.949				ug/L
[	Zn	66	528.911	3.310				ug/L
>	Ge	72	80853.034	8.213				ug/L
	As	75	-265.854	57.880				ug/L
[	Se	82	28.778	21.431				ug/L
	Y	89	28.889	12.010				ug/L
[	Mo	98	191.373	9.188				ug/L
	Ag	107	23.333	7.143				ug/L
	Ag	109	18.889	28.364				ug/L
	Cd	111	8.717	74.756				ug/L
	Cd	114	47.187	9.615				ug/L
>	In	115	278953.533	1.758				ug/L
[	Sb	121	67.778	18.456				ug/L
[	Ba	135	19.444	34.641				ug/L
>	Tb	159	225410.261	1.001				ug/L
	Ho	165	10.000	0.000				ug/L
	Tl	205	109.445	6.155				ug/L
	Pb	208	165.556	5.166				ug/L
	Bi	209	12.222	34.317				ug/L
	Th	232	23.889	31.460				ug/L
[	U	238	7.222	35.251				ug/L
[	Na	23	21267.269	3.850				mg/L
	Mg	24	3363.130	7.739				mg/L
	K	39	724474.342	0.845				mg/L
	Ca	44	20296.242	1.795				mg/L
	Fe	54	26247.848	5.761				mg/L
>	Sc-1	45	121504.446	5.749				mg/L
	Kr	83	82.778	20.368				mg/L

Sample ID: Blank

Report Date/Time: Tuesday, December 10, 2013 10:29:22

Page 1

## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6					
[	Be	9					
[	Al	27					
[>	Sc	45					
	V	51					
	Cr	52					
	Mn	55					
	Co	59					
	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72					
	As	75					
[	Se	82					
	Y	89					
[	Mo	98					
	Ag	107					
	Ag	109					
	Cd	111					
	Cd	114					
[>	In	115					
[	Sb	121					
[	Ba	135					
[>	Tb	159					
	Ho	165					
	Tl	205					
	Pb	208					
	Bi	209					
	Th	232					
[	U	238					
[	Na	23					
	Mg	24					
	K	39					
	Ca	44					
	Fe	54					
[>	Sc-1	45					
	Kr	83					



## Method 200.8 - Summary Report

### Sample ID: Standard 1

Sample Date/Time: Tuesday, December 10, 2013 10:30:49

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID:

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\Standard 1.46467

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	7594.617	4.190	7594.617			ug/L
[	Be	9	500.020	9.062	0.065	10.00000	13.40	ug/L
[	Al	27	83956.537	8.262	0.678	50.00000	5.81	ug/L
>	Sc	45	120394.635	9.420	120394.635			ug/L
	V	51	30833.115	7.799	0.279	10.00000	1.90	ug/L
	Cr	52	34734.180	4.887	0.238	10.00000	11.94	ug/L
	Mn	55	49482.453	8.097	0.396	10.00000	2.86	ug/L
	Co	59	41210.314	7.106	0.343	10.00000	9.36	ug/L
	Ni	60	9603.951	5.072	0.080	10.00000	13.23	ug/L
[	Cu	65	11308.011	4.254	0.093	10.00000	12.24	ug/L
[	Zn	66	5816.596	3.189	0.064	10.00000	5.69	ug/L
>	Ge	72	83093.307	7.094	83093.307			ug/L
	As	75	7463.800	3.780	0.093	10.00000	3.20	ug/L
[	Se	82	736.720	4.978	0.009	10.00000	10.05	ug/L
	Y	89	35.556	28.255	6.667			ug/L
[	Mo	98	20484.551	4.108	0.070	10.00000	4.45	ug/L
	Ag	107	31942.002	2.402	0.111	10.00000	2.08	ug/L
	Ag	109	30016.926	1.883	0.104	10.00000	2.25	ug/L
	Cd	111	7296.430	3.139	0.025	10.00000	2.81	ug/L
	Cd	114	16315.230	3.993	0.056	10.00000	3.64	ug/L
>	In	115	288040.353	0.382	288040.353			ug/L
[	Sb	121	22532.213	1.156	0.078	10.00000	1.24	ug/L
[	Ba	135	5187.709	2.632	0.023	10.00000	3.48	ug/L
>	Tb	159	227708.554	0.932	227708.554			ug/L
	Ho	165	8.889	21.651	-0.000			ug/L
	Tl	205	18952.031	1.834	0.083	10.00000	2.40	ug/L
	Pb	208	25835.365	1.972	0.113	10.00000	1.75	ug/L
	Bi	209	191.114	10.764	0.001			ug/L
	Th	232	23468.982	0.743	0.103	10.00000	1.52	ug/L
[	U	238	23440.547	1.437	0.103	10.00000	2.28	ug/L
[	Na	23	176765.182	6.364	1.297	0.10000	6.74	mg/L
	Mg	24	98796.741	7.091	0.794	0.10000	2.35	mg/L
	K	39	1014721.944	2.261	2.503	0.10000	23.49	mg/L
	Ca	44	29095.405	3.692	0.075	0.10000	18.38	mg/L
	Fe	54	60412.407	7.545	0.286	0.10000	3.46	mg/L
>	Sc-1	45	120394.635	9.420	120394.635			mg/L
	Kr	83	102.779	20.914	20.000			mg/L

Sample ID: Standard 1

Report Date/Time: Tuesday, December 10, 2013 10:32:24

Page 1

# QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6					
[	Be	9					
[	Al	27					
[>	Sc	45					
[	V	51					
[	Cr	52					
[	Mn	55					
[	Co	59					
[	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72					
[	As	75					
[	Se	82					
[	Y	89					
[	Mo	98					
[	Ag	107					
[	Ag	109					
[	Cd	111					
[	Cd	114					
[>	In	115					
[	Sb	121					
[	Ba	135					
[>	Tb	159					
[	Ho	165					
[	Tl	205					
[	Pb	208					
[	Bi	209					
[	Th	232					
[	U	238					
[	Na	23					
[	Mg	24					
[	K	39					
[	Ca	44					
[	Fe	54					
[>	Sc-1	45					
[	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: Standard 2

Sample Date/Time: Tuesday, December 10, 2013 10:33:51

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID:

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\Standard 2.46468

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	7483.387	8.258	7483.387			ug/L
[	Be	9	1046.754	5.177	0.139	20.27001	8.30	ug/L
[	Al	27	168825.540	3.581	1.324	99.50689	4.69	ug/L
>	Sc	45	125751.158	4.971	125751.158			ug/L
	V	51	66660.152	10.333	0.552	19.95862	7.16	ug/L
	Cr	52	65432.472	5.301	0.469	19.94116	6.34	ug/L
	Mn	55	93374.114	3.942	0.728	19.64972	2.29	ug/L
	Co	59	82584.671	7.635	0.656	19.81640	4.99	ug/L
	Ni	60	17823.097	7.929	0.141	19.49677	8.88	ug/L
[	Cu	65	21713.256	4.423	0.171	19.66628	7.59	ug/L
[	Zn	66	11055.328	2.376	0.127	19.98781	3.97	ug/L
>	Ge	72	82917.629	1.794	82917.629			ug/L
	As	75	15262.815	4.312	0.187	20.01723	2.55	ug/L
[	Se	82	1539.986	6.528	0.018	20.25433	8.32	ug/L
	Y	89	45.000	16.973	16.111			ug/L
[	Mo	98	41726.908	2.060	0.143	20.06831	1.83	ug/L
	Ag	107	62640.524	4.432	0.216	19.89727	3.31	ug/L
	Ag	109	60045.518	2.587	0.207	19.97892	3.68	ug/L
	Cd	111	14828.947	1.528	0.051	20.04377	2.90	ug/L
	Cd	114	32708.969	0.990	0.113	19.99267	2.31	ug/L
>	In	115	289780.105	1.391	289780.105			ug/L
[	Sb	121	45595.172	1.313	0.157	20.02958	2.20	ug/L
[	Ba	135	10015.797	0.800	0.044	19.89634	0.78	ug/L
>	Tb	159	225916.241	0.676	225916.241			ug/L
	Ho	165	8.889	47.186	-0.000			ug/L
	Tl	205	37963.301	1.592	0.168	20.04912	1.54	ug/L
	Pb	208	51707.860	1.433	0.228	20.04730	0.77	ug/L
	Bi	209	22.222	35.444	0.000			ug/L
	Th	232	46839.371	2.419	0.207	20.02507	2.61	ug/L
[	U	238	47253.533	1.260	0.209	20.06338	1.91	ug/L
[	Na	23	1564627.774	3.341	12.297	0.99946	7.78	mg/L
	Mg	24	998081.993	1.932	7.918	0.99997	3.18	mg/L
	K	39	3931053.893	4.088	25.346	1.00012	7.53	mg/L
	Ca	44	110324.366	3.633	0.712	0.99940	7.74	mg/L
	Fe	54	268460.794	6.118	1.924	0.99519	10.24	mg/L
>	Sc-1	45	125751.158	4.971	125751.158			mg/L
	Kr	83	90.556	20.687	7.778			mg/L

## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6					
[	Be	9					
[	Al	27					
[>	Sc	45					
	V	51					
	Cr	52					
	Mn	55					
	Co	59					
	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72					
	As	75					
[	Se	82					
	Y	89					
[	Mo	98					
	Ag	107					
	Ag	109					
	Cd	111					
	Cd	114					
[>	In	115					
[	Sb	121					
[	Ba	135					
[>	Tb	159					
	Ho	165					
	Tl	205					
	Pb	208					
	Bi	209					
	Th	232					
[	U	238					
[	Na	23					
	Mg	24					
	K	39					
	Ca	44					
	Fe	54					
[>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: Standard 3

Sample Date/Time: Tuesday, December 10, 2013 10:36:55

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID:

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\Standard 3.46469

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	7268.121	5.348	7268.121			ug/L
[	Be	9	5315.593	1.622	0.732	100.29004	6.91	ug/L
[	Al	27	821956.769	5.910	7.090	501.47493	4.58	ug/L
>	Sc	45	115567.951	2.323	115567.951			ug/L
	V	51	320477.105	4.555	2.797	100.04997	5.20	ug/L
	Cr	52	287940.324	4.087	2.441	100.17826	6.03	ug/L
	Mn	55	439478.771	12.274	3.782	100.09859	9.97	ug/L
	Co	59	410969.755	5.925	3.554	100.32584	3.85	ug/L
	Ni	60	88159.115	5.255	0.762	100.23538	5.71	ug/L
[	Cu	65	102862.609	2.265	0.889	100.09441	4.37	ug/L
[	Zn	66	51959.872	4.854	0.593	99.66754	3.02	ug/L
>	Ge	72	86729.175	6.312	86729.175			ug/L
	As	75	75937.279	1.528	0.881	99.70280	4.78	ug/L
[	Se	82	7349.429	4.599	0.085	99.70374	10.16	ug/L
	Y	89	55.000	25.891	26.111			ug/L
[	Mo	98	207189.271	4.661	0.710	99.97547	7.56	ug/L
	Ag	107	315313.159	2.628	1.081	99.97823	2.21	ug/L
	Ag	109	304173.802	1.974	1.043	100.02870	4.83	ug/L
	Cd	111	73612.950	2.175	0.252	99.94532	1.85	ug/L
	Cd	114	165344.379	2.346	0.567	100.02321	1.60	ug/L
>	In	115	291791.763	3.178	291791.763			ug/L
[	Sb	121	231113.596	1.072	0.792	100.04821	4.13	ug/L
[	Ba	135	51968.573	2.307	0.228	100.12495	2.52	ug/L
>	Tb	159	227485.810	1.203	227485.810			ug/L
	Ho	165	8.333	80.000	-0.000			ug/L
	Tl	205	188908.813	1.245	0.830	99.96706	1.47	ug/L
	Pb	208	255766.075	1.476	1.124	99.93934	1.81	ug/L
	Bi	209	31.667	5.263	0.000			ug/L
	Th	232	240048.464	1.872	1.055	100.09258	3.07	ug/L
[	U	238	246242.361	3.427	1.083	100.17721	4.11	ug/L
[	Na	23	15594848.406	1.770	134.821	10.00874	3.19	mg/L
	Mg	24	9813797.706	5.643	84.854	10.00669	3.64	mg/L
	K	39	27287389.920	1.205	230.221	9.98993	2.22	mg/L
	Ca	44	857587.925	3.472	7.255	10.00184	3.88	mg/L
	Fe	54	2170096.160	5.391	18.558	9.99582	4.33	mg/L
>	Sc-1	45	115567.951	2.323	115567.951			mg/L
	Kr	83	111.112	12.580	28.334			mg/L

## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6					
[	Be	9					
[	Al	27					
[>	Sc	45					
	V	51					
	Cr	52					
	Mn	55					
	Co	59					
	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72					
	As	75					
[	Se	82					
	Y	89					
[	Mo	98					
	Ag	107					
	Ag	109					
	Cd	111					
	Cd	114					
[>	In	115					
[	Sb	121					
[	Ba	135					
[>	Tb	159					
	Ho	165					
	Tl	205					
	Pb	208					
	Bi	209					
	Th	232					
[	U	238					
[	Na	23					
	Mg	24					
	K	39					
	Ca	44					
	Fe	54					
[>	Sc-1	45					
	Kr	83					

## Calibration

Analyte	Mass	Correlation Coefficient
Li	6	
Be	9	0.999900
Al	27	0.999911
Sc	45	
V	51	0.999997
Cr	52	0.999967
Mn	55	0.999962
Co	59	0.999887
Ni	60	0.999890
Cu	65	0.999966
Zn	66	0.999889
Ge	72	
As	75	0.999912
Se	82	0.999895
Y	89	
Mo	98	0.999998
Ag	107	0.999997
Ag	109	0.999999
Cd	111	0.999997
Cd	114	0.999999
In	115	
Sb	121	0.999997
Ba	135	0.999982
Tb	159	
Ho	165	
Tl	205	0.999998
Pb	208	0.999996
Bi	209	
Th	232	0.999991
U	238	0.999968
Na	23	0.999962
Mg	24	0.999978
K	39	0.999950
Ca	44	0.999998
Fe	54	0.999979
Sc-1	45	
Kr	83	

## Method 200.8 - Summary Report

### Sample ID: SEQ-ICV

Sample Date/Time: Tuesday, December 10, 2013 10:39:57

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID:

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\SEQ-ICV.46470

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	7407.184	8.151	7407.184			ug/L
[	Be	9	2593.872	2.470	0.351	48.07769	9.76	ug/L
[	Al	27	405633.550	5.248	3.545	250.71094	1.32	ug/L
>	Sc	45	113811.793	5.608	113811.793			ug/L
	V	51	160823.881	7.754	1.435	51.32437	2.93	ug/L
	Cr	52	141728.501	1.052	1.196	49.06248	5.84	ug/L
	Mn	55	220070.287	9.233	1.917	50.74537	5.80	ug/L
	Co	59	195376.352	5.677	1.717	48.46994	3.40	ug/L
	Ni	60	43691.908	2.798	0.384	50.49462	6.30	ug/L
[	Cu	65	51429.167	6.880	0.452	50.93759	12.90	ug/L
[	Zn	66	26043.106	4.418	0.296	49.78749	9.88	ug/L
>	Ge	72	86347.481	6.738	86347.481			ug/L
	As	75	38372.583	2.860	0.448	50.77895	4.07	ug/L
[	Se	82	3704.922	2.392	0.043	50.27558	9.25	ug/L
	Y	89	45.556	26.968	16.667			ug/L
[	Mo	98	103988.057	2.216	0.353	49.63276	2.16	ug/L
	Ag	107	159368.216	3.254	0.542	50.09689	3.61	ug/L
	Ag	109	151865.495	2.792	0.516	49.46955	2.53	ug/L
	Cd	111	36923.884	3.109	0.125	49.68931	2.75	ug/L
	Cd	114	81381.454	3.154	0.276	48.79325	3.20	ug/L
>	In	115	294251.038	0.385	294251.038			ug/L
[	Sb	121	114869.380	0.941	0.390	49.25226	0.83	ug/L
[	Ba	135	25511.978	2.099	0.110	48.32735	1.04	ug/L
>	Tb	159	231250.551	1.575	231250.551			ug/L
	Ho	165	8.889	47.186	-0.000			ug/L
	Tl	205	94122.954	1.278	0.407	48.96639	0.74	ug/L
	Pb	208	126175.454	2.215	0.545	48.45879	0.65	ug/L
	Bi	209	16.667	62.450	0.000			ug/L
	Th	232	118787.314	1.725	0.514	48.72319	3.24	ug/L
[	U	238	121526.390	3.062	0.526	48.63537	3.83	ug/L
[	Na	23	7890871.109	2.683	69.240	5.14022	3.32	mg/L
	Mg	24	4952406.115	6.022	43.494	5.12916	3.02	mg/L
	K	39	13961231.198	0.574	116.968	5.07557	5.99	mg/L
	Ca	44	422083.455	5.141	3.542	4.88333	1.28	mg/L
	Fe	54	1076600.067	5.601	9.263	4.98891	7.85	mg/L
>	Sc-1	45	113811.793	5.608	113811.793			mg/L
	Kr	83	96.667	14.113	13.889			mg/L

Sample ID: SEQ-ICV

Report Date/Time: Tuesday, December 10, 2013 10:41:33

Page 1



# QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		96.788			
[	Be	9	96.155				
[	Al	27	100.284				
>	Sc	45		93.669			
	V	51	102.649				
	Cr	52	98.125				
	Mn	55	101.491				
	Co	59	96.940				
	Ni	60	100.989				
[	Cu	65	101.875				
[	Zn	66	99.575				
>	Ge	72		106.796			
	As	75	101.558				
[	Se	82	100.551				
	Y	89					
[	Mo	98	99.266				
	Ag	107	100.194				
	Ag	109	98.939				
	Cd	111	99.379				
	Cd	114					
>	In	115		105.484			
[	Sb	121	98.505				
[	Ba	135	96.655				
>	Tb	159		102.591			
	Ho	165					
	Tl	205	97.933				
	Pb	208	96.918				
	Bi	209					
	Th	232	97.446				
[	U	238	97.271				
[	Na	23	102.804				
	Mg	24	102.583				
	K	39	101.511				
	Ca	44	97.667				
	Fe	54	99.778				
>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: SEQ-SCV

Sample Date/Time: Tuesday, December 10, 2013 10:43:15

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID:

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\SEQ-SCV.46471

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	7474.467	1.518	7474.467			ug/L
[	Be	9	2788.400	2.453	0.372	50.97431	3.13	ug/L
[	Al	27	102396.464	3.283	0.857	60.58898	7.13	ug/L
>	Sc	45	117296.817	9.852	117296.817			ug/L
	V	51	167026.159	15.950	1.446	51.72416	12.32	ug/L
	Cr	52	151177.008	4.289	1.244	51.05653	10.47	ug/L
	Mn	55	217426.904	8.015	1.841	48.72515	3.01	ug/L
	Co	59	203047.258	10.438	1.733	48.91465	7.32	ug/L
	Ni	60	46045.521	5.705	0.394	51.73721	7.97	ug/L
[	Cu	65	54734.357	3.361	0.468	52.73626	11.43	ug/L
[	Zn	66	28027.297	6.011	0.314	52.80527	4.86	ug/L
>	Ge	72	87545.078	8.480	87545.078			ug/L
	As	75	38622.563	1.178	0.446	50.54546	7.88	ug/L
[	Se	82	19923.294	3.161	0.228	268.85901	10.16	ug/L
	Y	89	51.111	13.179	22.222			ug/L
[	Mo	98	106722.999	1.974	0.363	51.03813	4.50	ug/L
	Ag	107	164253.967	1.417	0.559	51.70115	1.91	ug/L
	Ag	109	157112.147	1.418	0.535	51.27669	4.16	ug/L
	Cd	111	37884.252	2.680	0.129	51.07602	4.51	ug/L
	Cd	114	83299.858	2.275	0.283	50.01382	2.63	ug/L
>	In	115	293930.070	2.797	293930.070			ug/L
[	Sb	121	119936.034	1.079	0.408	51.51501	3.53	ug/L
[	Ba	135	26564.672	1.023	0.115	50.37898	1.60	ug/L
>	Tb	159	231041.139	1.940	231041.139			ug/L
	Ho	165	11.111	22.913	0.000			ug/L
	Tl	205	98039.655	3.419	0.424	51.06949	4.42	ug/L
	Pb	208	131553.565	1.448	0.569	50.58025	0.81	ug/L
	Bi	209	172.225	9.548	0.001			ug/L
	Th	232	123098.367	1.402	0.533	50.54098	3.19	ug/L
[	U	238	123487.828	2.187	0.535	49.47244	3.63	ug/L
[	Na	23	7975627.793	5.146	68.258	5.06727	11.12	mg/L
	Mg	24	5288492.273	4.175	45.219	5.33257	5.39	mg/L
	K	39	14572973.434	0.174	119.040	5.16548	9.76	mg/L
	Ca	44	432736.599	6.960	3.530	4.86585	4.12	mg/L
	Fe	54	1142764.921	3.070	9.573	5.15606	7.70	mg/L
>	Sc-1	45	117296.817	9.852	117296.817			mg/L
	Kr	83	92.778	13.242	10.000			mg/L

Sample ID: SEQ-SCV

Report Date/Time: Tuesday, December 10, 2013 10:44:52

Page 1

## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		97.667			
[	Be	9	101.949				
[	Al	27	121.178				
>	Sc	45		96.537			
	V	51	103.448				
	Cr	52	102.113				
	Mn	55	97.450				
	Co	59	97.829				
	Ni	60	103.474				
[	Cu	65	105.473				
[	Zn	66	105.611				
>	Ge	72		108.277			
	As	75	101.091				
[	Se	82	107.544				
	Y	89					
[	Mo	98	102.076				
	Ag	107	103.402				
	Ag	109	102.553				
	Cd	111	102.152				
	Cd	114					
>	In	115		105.369			
[	Sb	121	103.030				
[	Ba	135	100.758				
>	Tb	159		102.498			
	Ho	165					
	Tl	205	102.139				
	Pb	208	101.161				
	Bi	209					
	Th	232	101.082				
[	U	238	98.945				
[	Na	23	101.345				
	Mg	24	106.651				
	K	39	103.310				
	Ca	44	97.317				
	Fe	54	103.121				
>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: SEQ-ICB

Sample Date/Time: Tuesday, December 10, 2013 10:46:33

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID:

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\SEQ-ICB.46472

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	7221.396	3.866	7221.396			ug/L
[	Be	9	4.444	94.373	-0.000	-0.05650	138.94	ug/L
[	Al	27	2539.408	9.766	0.002	0.11550	160.53	ug/L
>	Sc	45	116629.525	8.651	116629.525			ug/L
	V	51	-1791.822	44.975	0.007	0.25740	104.01	ug/L
	Cr	52	6063.498	3.580	-0.000	-0.00295	4519.36	ug/L
	Mn	55	1924.002	14.258	0.002	0.04273	223.95	ug/L
	Co	59	65.000	30.230	0.000	0.00606	94.78	ug/L
	Ni	60	76.739	12.311	0.000	0.00729	190.89	ug/L
[	Cu	65	196.670	13.639	0.000	0.00424	949.21	ug/L
[	Zn	66	507.798	0.758	-0.000	-0.06063	113.79	ug/L
>	Ge	72	82373.881	5.971	82373.881			ug/L
	As	75	-29.715	123.933	0.003	0.33162	14.95	ug/L
[	Se	82	37.223	34.199	0.000	0.11249	154.87	ug/L
	Y	89	25.000	23.094	-3.889			ug/L
[	Mo	98	671.155	15.483	0.002	0.22075	23.19	ug/L
	Ag	107	57.778	30.300	0.000	0.01021	53.61	ug/L
	Ag	109	49.445	25.745	0.000	0.00940	42.12	ug/L
	Cd	111	15.162	38.191	0.000	0.00774	97.18	ug/L
	Cd	114	44.473	18.861	-0.000	-0.00352	136.66	ug/L
>	In	115	297892.057	0.804	297892.057			ug/L
[	Sb	121	392.790	7.642	0.001	0.13585	10.14	ug/L
[	Ba	135	21.667	20.352	0.000	0.00292	262.49	ug/L
>	Tb	159	232666.955	1.848	232666.955			ug/L
	Ho	165	11.667	0.000	0.000			ug/L
	Tl	205	131.668	29.114	0.000	0.00983	207.29	ug/L
	Pb	208	192.779	2.176	0.000	0.00837	16.89	ug/L
	Bi	209	8.333	20.000	-0.000			ug/L
	Th	232	53.889	19.884	0.000	0.01197	39.46	ug/L
[	U	238	24.444	39.951	0.000	0.00680	58.68	ug/L
[	Na	23	25407.745	5.262	0.043	0.00321	16.81	mg/L
	Mg	24	4377.094	7.835	0.010	0.00117	26.61	mg/L
	K	39	717483.689	0.447	0.219	0.00952	238.10	mg/L
	Ca	44	19667.579	2.797	0.002	0.00296	456.67	mg/L
	Fe	54	27067.162	7.098	0.016	0.00876	25.12	mg/L
>	Sc-1	45	116629.525	8.651	116629.525			mg/L
	Kr	83	97.223	17.843	14.445			mg/L

Sample ID: SEQ-ICB

Report Date/Time: Tuesday, December 10, 2013 10:48:09

Page 1

## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		94.360			
[	Be	9					
[	Al	27					
[>	Sc	45		95.988			
[	V	51					
[	Cr	52					
[	Mn	55					
[	Co	59					
[	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		101.881			
[	As	75					
[	Se	82					
[	Y	89					
[	Mo	98					
[	Ag	107					
[	Ag	109					
[	Cd	111					
[	Cd	114					
[>	In	115		106.789			
[	Sb	121					
[	Ba	135					
[>	Tb	159		103.219			
[	Ho	165					
[	Tl	205					
[	Pb	208					
[	Bi	209					
[	Th	232					
[	U	238					
[	Na	23					
[	Mg	24					
[	K	39					
[	Ca	44					
[	Fe	54					
[>	Sc-1	45					
[	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: SEQ-CRL

Sample Date/Time: Tuesday, December 10, 2013 10:49:50

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID:

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\SEQ-CRL.46473

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
[>	Li	6	7163.005	7.000	7163.005			ug/L
[	Be	9	22.778	40.299	0.002	0.29208	52.46	ug/L
[	Al	27	33924.177	4.718	0.266	18.82768	7.10	ug/L
[>	Sc	45	118546.262	2.174	118546.262			ug/L
	V	51	4357.843	8.930	0.059	2.12489	4.48	ug/L
	Cr	52	8822.372	9.697	0.022	0.91573	39.67	ug/L
	Mn	55	2776.400	23.809	0.008	0.21875	61.61	ug/L
	Co	59	902.288	14.476	0.007	0.20524	16.66	ug/L
	Ni	60	943.333	6.235	0.007	0.96765	9.07	ug/L
[	Cu	65	1118.989	1.565	0.008	0.87549	4.55	ug/L
[	Zn	66	2922.350	2.487	0.030	5.02150	6.54	ug/L
[>	Ge	72	80327.144	3.243	80327.144			ug/L
	As	75	1320.752	14.425	0.020	2.23004	9.73	ug/L
[	Se	82	126.780	14.659	0.001	1.44271	21.46	ug/L
	Y	89	31.111	3.093	2.222			ug/L
[	Mo	98	647.766	1.611	0.001	0.20727	5.40	ug/L
	Ag	107	1646.884	6.983	0.005	0.49948	5.44	ug/L
	Ag	109	1515.184	3.464	0.005	0.47754	4.19	ug/L
	Cd	111	155.591	14.999	0.000	0.19345	18.11	ug/L
	Cd	114	365.459	3.635	0.001	0.18523	6.71	ug/L
[>	In	115	300196.333	2.305	300196.333			ug/L
[	Sb	121	2478.825	0.067	0.008	1.01213	2.37	ug/L
[	Ba	135	289.451	3.374	0.001	0.50431	4.06	ug/L
[>	Tb	159	234099.225	0.507	234099.225			ug/L
	Ho	165	6.667	25.000	-0.000			ug/L
	Tl	205	402.791	7.811	0.001	0.14881	11.50	ug/L
	Pb	208	701.682	3.088	0.002	0.20126	3.95	ug/L
	Bi	209	13.889	27.713	0.000			ug/L
	Th	232	2115.916	9.037	0.009	0.84704	8.87	ug/L
[	U	238	490.575	2.929	0.002	0.19095	3.19	ug/L
[	Na	23	6317.638	3.430	-0.122	-0.00903	2.38	mg/L
	Mg	24	3179.142	2.044	-0.001	-0.00010	86.69	mg/L
	K	39	678092.755	4.706	-0.237	-0.01027	166.99	mg/L
	Ca	44	19070.747	3.877	-0.006	-0.00831	162.05	mg/L
	Fe	54	27007.000	3.584	0.012	0.00643	99.42	mg/L
[>	Sc-1	45	118546.262	2.174	118546.262			mg/L
	Kr	83	81.112	11.863	-1.667			mg/L

Sample ID: SEQ-CRL

Report Date/Time: Tuesday, December 10, 2013 10:51:26

Page 1

## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		93.597			
[	Be	9	146.038				
[	Al	27	94.138				
[>	Sc	45		97.565			
[	V	51	106.245				
[	Cr	52	91.573				
[	Mn	55	109.373				
[	Co	59	102.619				
[	Ni	60	96.765				
[	Cu	65	87.549				
[	Zn	66	100.430				
[>	Ge	72		99.350			
[	As	75	111.502				
[	Se	82	144.271				
[	Y	89					
[	Mo	98	103.635				
[	Ag	107	99.895				
[	Ag	109	95.509				
[	Cd	111	96.727				
[	Cd	114					
[>	In	115		107.615			
[	Sb	121	101.213				
[	Ba	135	100.863				
[>	Tb	159		103.855			
[	Ho	165					
[	Tl	205	74.403				
[	Pb	208	100.629				
[	Bi	209					
[	Th	232	84.704				
[	U	238	95.474				
[	Na	23					
[	Mg	24					
[	K	39					
[	Ca	44					
[	Fe	54					
[>	Sc-1	45					
[	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: SEQ-IFA

Sample Date/Time: Tuesday, December 10, 2013 10:53:07

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID:

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\SEQ-IFA.46474

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8086.906	5.593	8086.906			ug/L
[	Be	9	5.000	33.333	-0.000	-0.05444	53.51	ug/L
[	Al	27	16707227.814	8.571	132.417	9366.01324	4.99	ug/L
>	Sc	45	126214.788	8.047	126214.788			ug/L
	V	51	-2645.776	28.249	0.002	0.05681	414.98	ug/L
	Cr	52	7665.255	2.290	0.009	0.35721	46.16	ug/L
	Mn	55	3976.645	8.551	0.017	0.43777	21.79	ug/L
	Co	59	153.891	7.211	0.001	0.02450	1.40	ug/L
	Ni	60	53.186	108.609	-0.000	-0.02100	299.42	ug/L
[	Cu	65	1101.764	6.889	0.007	0.80140	16.16	ug/L
[	Zn	66	1433.498	4.952	0.010	1.72016	5.76	ug/L
>	Ge	72	85447.903	3.760	85447.903			ug/L
	As	75	-292.197	22.328	-0.000	-0.01311	542.10	ug/L
[	Se	82	29.889	70.714	-0.000	-0.01359	2052.53	ug/L
	Y	89	32.222	16.627	3.333			ug/L
[	Mo	98	400245.657	0.942	1.436	202.00223	2.44	ug/L
	Ag	107	36.111	22.767	0.000	0.00426	65.15	ug/L
	Ag	109	42.222	9.116	0.000	0.00802	14.75	ug/L
	Cd	111	83.515	63.050	0.000	0.10635	69.93	ug/L
	Cd	114	712.716	6.409	0.002	0.42128	5.39	ug/L
>	In	115	278753.303	1.572	278753.303			ug/L
[	Sb	121	228.338	6.363	0.001	0.07280	10.74	ug/L
[	Ba	135	83.889	6.387	0.000	0.13668	9.48	ug/L
>	Tb	159	210874.793	1.044	210874.793			ug/L
	Ho	165	6.667	43.301	-0.000			ug/L
	Tl	205	29.445	6.536	-0.000	-0.04165	3.07	ug/L
	Pb	208	306.670	8.541	0.001	0.06405	17.78	ug/L
	Bi	209	177.225	7.998	0.001			ug/L
	Th	232	66.111	1.456	0.000	0.01969	3.44	ug/L
[	U	238	16.667	20.000	0.000	0.00435	33.78	ug/L
[	Na	23	15752505.692	2.183	125.129	9.28927	7.70	mg/L
	Mg	24	9766089.435	3.376	77.538	9.14389	4.59	mg/L
	K	39	30287977.190	3.295	234.859	10.19119	7.55	mg/L
	Ca	44	926069.765	2.038	7.206	9.93386	9.46	mg/L
	Fe	54	2321987.353	1.835	18.241	9.82491	6.18	mg/L
>	Sc-1	45	126214.788	8.047	126214.788			mg/L
	Kr	83	102.223	12.664	19.445			mg/L

Sample ID: SEQ-IFA

Report Date/Time: Tuesday, December 10, 2013 10:54:43

Page 1



# QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		105.670			
[	Be	9					
[	Al	27	93.660				
[>	Sc	45		103.877			
[	V	51					
[	Cr	52					
[	Mn	55					
[	Co	59					
[	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		105.683			
[	As	75					
[	Se	82					
[	Y	89					
[	Mo	98	101.001				
[	Ag	107					
[	Ag	109					
[	Cd	111					
[	Cd	114					
[>	In	115		99.928			
[	Sb	121					
[	Ba	135					
[>	Tb	159		93.552			
[	Ho	165					
[	Tl	205					
[	Pb	208					
[	Bi	209					
[	Th	232					
[	U	238					
[	Na	23	92.893				
[	Mg	24	91.439				
[	K	39	101.912				
[	Ca	44	99.339				
[	Fe	54	98.249				
[>	Sc-1	45					
[	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: SEQ-IFB

Sample Date/Time: Tuesday, December 10, 2013 10:56:24

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID:

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\SEQ-IFB.46475

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
[>	Li	6	8110.267	4.905	8110.267			ug/L
[	Be	9	5.000	57.735	-0.000	-0.05305	102.37	ug/L
[	Al	27	15748088.532	6.855	122.167	8641.02777	4.72	ug/L
[>	Sc	45	128799.545	2.103	128799.545			ug/L
	V	51	-5850.407	20.403	-0.023	-0.81409	41.08	ug/L
	Cr	52	68367.492	4.933	0.478	19.62989	3.23	ug/L
	Mn	55	95256.122	3.538	0.724	19.17487	3.07	ug/L
	Co	59	86527.443	7.231	0.671	18.94123	5.12	ug/L
	Ni	60	18425.681	4.745	0.142	18.73097	5.11	ug/L
[	Cu	65	22182.732	6.260	0.171	19.22331	8.02	ug/L
[	Zn	66	11773.332	6.473	0.133	22.28968	7.09	ug/L
[>	Ge	72	84642.613	3.799	84642.613			ug/L
	As	75	14895.712	3.114	0.180	20.32304	5.75	ug/L
[	Se	82	19.000	56.469	-0.000	-0.15112	103.10	ug/L
	Y	89	40.556	17.110	11.667			ug/L
[	Mo	98	390807.266	1.937	1.412	198.72963	3.32	ug/L
	Ag	107	58304.132	2.497	0.211	19.48679	2.53	ug/L
	Ag	109	55375.081	4.276	0.200	19.18747	5.15	ug/L
	Cd	111	13798.566	2.625	0.050	19.75987	5.63	ug/L
	Cd	114	31071.707	0.983	0.112	19.80474	3.75	ug/L
[>	In	115	276745.571	3.061	276745.571			ug/L
[	Sb	121	170.558	10.984	0.000	0.04735	22.90	ug/L
[	Ba	135	59.445	16.428	0.000	0.09052	23.72	ug/L
[>	Tb	159	203139.027	0.346	203139.027			ug/L
	Ho	165	8.333	52.915	-0.000			ug/L
	Tl	205	18.889	44.411	-0.000	-0.04729	10.49	ug/L
	Pb	208	227.224	0.424	0.000	0.03416	1.60	ug/L
	Bi	209	176.114	3.324	0.001			ug/L
	Th	232	35.556	9.758	0.000	0.00655	24.51	ug/L
[	U	238	3.889	24.744	-0.000	-0.00119	36.19	ug/L
[	Na	23	14935332.381	5.863	115.848	8.60024	6.91	mg/L
	Mg	24	9222164.395	3.754	71.561	8.43909	2.15	mg/L
	K	39	31447140.313	6.333	238.075	10.33071	4.73	mg/L
	Ca	44	995754.403	4.907	7.570	10.43597	6.82	mg/L
	Fe	54	2470063.050	1.983	18.971	10.21818	3.89	mg/L
[>	Sc-1	45	128799.545	2.103	128799.545			mg/L
	Kr	83	103.334	8.980	20.556			mg/L

Sample ID: SEQ-IFB

Report Date/Time: Tuesday, December 10, 2013 10:58:00

Page 2

# QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[> Li	6		105.975			
[ Be	9					
[ Al	27	86.410				
[> Sc	45		106.004			
[ V	51					
[ Cr	52	98.149				
[ Mn	55	95.874				
[ Co	59	94.706				
[ Ni	60	93.655				
[ Cu	65	96.117				
[ Zn	66	111.448				
[> Ge	72		104.687			
[ As	75	101.615				
[ Se	82					
[ Y	89					
[ Mo	98	99.365				
[ Ag	107	97.434				
[ Ag	109	95.937				
[ Cd	111	98.799				
[ Cd	114					
[> In	115		99.208			
[ Sb	121					
[ Ba	135					
[> Tb	159		90.120			
[ Ho	165					
[ Tl	205					
[ Pb	208					
[ Bi	209					
[ Th	232					
[ U	238					
[ Na	23	86.002				
[ Mg	24	84.391				
[ K	39	103.307				
[ Ca	44	104.360				
[ Fe	54	102.182				
[> Sc-1	45					
[ Kr	83					

## Method 200.8 - Summary Report

### Sample ID: 1312040-BLK1

Sample Date/Time: Tuesday, December 10, 2013 10:59:42

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312040

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\1312040-BLK1.46476

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	7739.236	3.127	7739.236			ug/L
[	Be	9	6.111	41.660	-0.000	-0.03162	138.00	ug/L
[	Al	27	3336.465	18.146	0.006	0.42680	61.20	ug/L
>	Sc	45	126561.237	4.324	126561.237			ug/L
	V	51	-1839.443	15.517	0.008	0.28846	34.43	ug/L
	Cr	52	6455.563	6.386	-0.001	-0.04952	238.27	ug/L
	Mn	55	1817.479	28.391	-0.001	-0.01577	792.90	ug/L
	Co	59	48.889	1.968	0.000	0.00098	36.34	ug/L
	Ni	60	62.995	10.894	-0.000	-0.01401	69.70	ug/L
[	Cu	65	1361.815	6.383	0.009	1.02318	3.69	ug/L
[	Zn	66	242.783	10.121	-0.004	-0.61561	5.50	ug/L
>	Ge	72	84220.274	3.731	84220.274			ug/L
	As	75	-100.016	284.837	0.002	0.24509	157.14	ug/L
[	Se	82	14.778	135.365	-0.000	-0.21364	127.39	ug/L
	Y	89	26.667	21.651	-2.222			ug/L
[	Mo	98	1784.230	12.759	0.006	0.81196	12.39	ug/L
	Ag	107	22.778	8.449	-0.000	-0.00010	583.84	ug/L
	Ag	109	23.889	4.028	0.000	0.00181	28.61	ug/L
	Cd	111	4.525	82.825	-0.000	-0.00581	94.89	ug/L
	Cd	114	24.360	69.734	-0.000	-0.01426	75.64	ug/L
>	In	115	276001.647	2.179	276001.647			ug/L
[	Sb	121	58.334	22.678	-0.000	-0.00394	160.06	ug/L
[	Ba	135	5.000	88.192	-0.000	-0.02741	33.56	ug/L
>	Tb	159	213283.636	2.135	213283.636			ug/L
	Ho	165	8.889	60.273	-0.000			ug/L
	Tl	205	7.778	44.607	-0.000	-0.05411	3.44	ug/L
	Pb	208	140.556	7.148	-0.000	-0.00672	57.55	ug/L
	Bi	209	10.000	0.000	-0.000			ug/L
	Th	232	10.000	0.000	-0.000	-0.00560	1.68	ug/L
[	U	238	3.333	86.603	-0.000	-0.00153	78.81	ug/L
[	Na	23	7165.894	21.129	-0.119	-0.00881	8.18	mg/L
	Mg	24	3783.375	10.393	0.002	0.00026	88.09	mg/L
	K	39	693019.040	0.364	-0.480	-0.02082	50.01	mg/L
	Ca	44	20375.957	2.934	-0.006	-0.00820	74.41	mg/L
	Fe	54	29122.303	14.722	0.013	0.00726	184.47	mg/L
>	Sc-1	45	126561.237	4.324	126561.237			mg/L
	Kr	83	98.890	15.660	16.111			mg/L

Sample ID: 1312040-BLK1

Report Date/Time: Tuesday, December 10, 2013 11:01:18

Page 2

### QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[> Li	6		101.127			
[ Be	9					
[ Al	27					
[> Sc	45		104.162			
[ V	51					
[ Cr	52					
[ Mn	55					
[ Co	59					
[ Ni	60					
[ Cu	65					
[ Zn	66					
[> Ge	72		104.165			
[ As	75					
[ Se	82					
[ Y	89					
[ Mo	98					
[ Ag	107					
[ Ag	109					
[ Cd	111					
[ Cd	114					
[> In	115		98.942			
[ Sb	121					
[ Ba	135					
[> Tb	159		94.620			
[ Ho	165					
[ Tl	205					
[ Pb	208					
[ Bi	209					
[ Th	232					
[ U	238					
[ Na	23					
[ Mg	24					
[ K	39					
[ Ca	44					
[ Fe	54					
[> Sc-1	45					
[ Kr	83					

## Method 200.8 - Summary Report

### Sample ID: C131107-04

Sample Date/Time: Tuesday, December 10, 2013 11:02:44

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312040

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-04.46477

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8044.623	3.814	8044.623			ug/L
[	Be	9	3.889	49.487	-0.001	-0.07361	42.67	ug/L
[	Al	27	21787.444	5.978	0.145	10.28015	3.31	ug/L
>	Sc	45	131680.916	6.928	131680.916			ug/L
	V	51	4392.780	28.737	0.056	2.00076	16.13	ug/L
	Cr	52	24109.952	8.152	0.132	5.40500	17.57	ug/L
	Mn	55	45280.218	3.262	0.329	8.71888	4.82	ug/L
	Co	59	457.795	4.610	0.003	0.08834	4.68	ug/L
	Ni	60	22.106	675.311	-0.000	-0.05222	283.95	ug/L
[	Cu	65	733.376	5.208	0.004	0.44226	15.85	ug/L
[	Zn	66	840.056	2.381	0.004	0.63024	0.67	ug/L
>	Ge	72	81626.459	2.514	81626.459			ug/L
	As	75	-57.424	242.927	0.003	0.29528	64.24	ug/L
[	Se	82	35.334	61.321	0.000	0.09561	343.43	ug/L
	Y	89	439.460	3.742	410.571			ug/L
[	Mo	98	1786.572	3.152	0.006	0.81327	5.70	ug/L
	Ag	107	40.000	11.024	0.000	0.00566	30.07	ug/L
	Ag	109	35.000	19.048	0.000	0.00565	41.02	ug/L
	Cd	111	22.337	32.079	0.000	0.01972	53.89	ug/L
	Cd	114	70.089	24.088	0.000	0.01505	78.78	ug/L
>	In	115	276516.958	2.247	276516.958			ug/L
[	Sb	121	323.897	4.891	0.001	0.11724	6.47	ug/L
[	Ba	135	26971.425	2.313	0.128	56.27789	1.29	ug/L
>	Tb	159	210031.265	3.507	210031.265			ug/L
	Ho	165	8.889	57.282	-0.000			ug/L
	Tl	205	37.778	20.849	-0.000	-0.03689	10.29	ug/L
	Pb	208	178.334	15.970	0.000	0.01018	112.38	ug/L
	Bi	209	8.889	60.273	-0.000			ug/L
	Th	232	28.333	15.563	0.000	0.00271	58.46	ug/L
[	U	238	572.248	5.695	0.003	0.24912	4.34	ug/L
[	Na	23	3425978.638	0.765	25.931	1.92508	7.45	mg/L
	Mg	24	4808323.753	1.027	36.584	4.31427	5.73	mg/L
	K	39	2251368.235	5.623	11.212	0.48653	16.62	mg/L
	Ca	44	3056204.005	2.480	23.136	31.89349	8.88	mg/L
	Fe	54	26498.733	8.654	-0.014	-0.00735	205.55	mg/L
>	Sc-1	45	131680.916	6.928	131680.916			mg/L
	Kr	83	104.445	12.188	21.667			mg/L

# QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		105.117			
[	Be	9					
[	Al	27					
[>	Sc	45		108.375			
	V	51					
	Cr	52					
	Mn	55					
	Co	59					
	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		100.957			
	As	75					
[	Se	82					
	Y	89					
[	Mo	98					
	Ag	107					
	Ag	109					
	Cd	111					
	Cd	114					
[>	In	115		99.127			
[	Sb	121					
[	Ba	135					
[>	Tb	159		93.177			
	Ho	165					
	Tl	205					
	Pb	208					
	Bi	209					
	Th	232					
[	U	238					
[	Na	23					
	Mg	24					
	K	39					
	Ca	44					
	Fe	54					
[>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: 1312040-DUP1

Sample Date/Time: Tuesday, December 10, 2013 11:05:47

Sample Type: Duplicate of 2

Sample Description:

Number of Replicates: 3

Batch ID: 1312040

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\1312040-DUP1.46478

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8440.144	3.285	8440.144			ug/L
[	Be	9	5.556	17.321	-0.000	-0.04917	28.54	ug/L
[	Al	27	21730.496	1.641	0.139	9.80508	9.81	ug/L
>	Sc	45	137320.901	6.635	137320.901			ug/L
	V	51	4458.790	30.456	0.056	1.99224	22.49	ug/L
	Cr	52	25840.572	3.393	0.137	5.60686	12.27	ug/L
	Mn	55	46831.198	5.381	0.326	8.63243	1.98	ug/L
	Co	59	460.017	15.428	0.003	0.08442	12.79	ug/L
	Ni	60	-133.750	87.334	-0.002	-0.20730	51.49	ug/L
[	Cu	65	778.937	4.591	0.004	0.45199	8.06	ug/L
[	Zn	66	823.943	4.264	0.003	0.50042	9.15	ug/L
>	Ge	72	86559.063	3.405	86559.063			ug/L
	As	75	61.660	112.297	0.004	0.45302	19.90	ug/L
[	Se	82	49.112	32.975	0.000	0.25288	92.14	ug/L
	Y	89	427.237	6.873	398.348			ug/L
[	Mo	98	1534.458	5.412	0.005	0.67840	6.54	ug/L
	Ag	107	20.000	25.000	-0.000	-0.00109	157.27	ug/L
	Ag	109	20.556	12.385	0.000	0.00058	143.99	ug/L
	Cd	111	25.882	45.067	0.000	0.02460	69.10	ug/L
	Cd	114	46.330	34.718	-0.000	-0.00037	2915.41	ug/L
>	In	115	278716.067	2.249	278716.067			ug/L
[	Sb	121	226.671	5.147	0.001	0.07196	4.61	ug/L
[	Ba	135	25997.292	0.699	0.127	55.87497	0.88	ug/L
>	Tb	159	203863.061	1.527	203863.061			ug/L
	Ho	165	12.778	30.123	0.000			ug/L
	Tl	205	34.445	24.830	-0.000	-0.03808	13.88	ug/L
	Pb	208	141.667	5.128	-0.000	-0.00348	112.82	ug/L
	Bi	209	6.111	31.492	-0.000			ug/L
	Th	232	15.556	6.186	-0.000	-0.00282	11.97	ug/L
[	U	238	582.249	2.882	0.003	0.26134	3.18	ug/L
[	Na	23	3423527.957	3.800	24.797	1.84090	4.43	mg/L
	Mg	24	5084459.902	3.611	37.050	4.36922	3.14	mg/L
	K	39	2401782.646	6.216	11.631	0.50470	20.08	mg/L
	Ca	44	3177295.153	4.995	22.997	31.70177	3.68	mg/L
	Fe	54	26434.867	15.525	-0.024	-0.01293	86.03	mg/L
>	Sc-1	45	137320.901	6.635	137320.901			mg/L
	Kr	83	115.001	15.676	32.223			mg/L

Sample ID: 1312040-DUP1

Report Date/Time: Tuesday, December 10, 2013 11:07:22

Page 2



## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		110.285			
[	Be	9					39.803
[	Al	27					4.731
[>	Sc	45		113.017			
	V	51					0.427
	Cr	52					3.666
	Mn	55					0.996
	Co	59					4.544
	Ni	60					119.508
[	Cu	65					2.177
[	Zn	66					22.963
[>	Ge	72		107.057			
	As	75					42.160
[	Se	82					90.257
	Y	89					
[	Mo	98					18.083
	Ag	107					294.973
	Ag	109					162.998
	Cd	111					22.039
	Cd	114					210.022
[>	In	115		99.915			
[	Sb	121					47.866
[	Ba	135					0.719
[>	Tb	159		90.441			
	Ho	165					
	Tl	205					3.169
	Pb	208					408.266
	Bi	209					
	Th	232					10014.090
[	U	238					4.787
[	Na	23					4.471
	Mg	24					1.265
	K	39					3.666
	Ca	44					0.603
	Fe	54					55.012
[>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: SEQ-SRD1 @5X

Sample Date/Time: Tuesday, December 10, 2013 11:08:49

Sample Type: Dilution - DF:5 of 2

Sample Description:

Number of Replicates: 3

Batch ID: 1312040

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\SEQ-SRD1 @5X.46479

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8454.611	4.339	8454.611			ug/L
[	Be	9	2.222	43.301	-0.001	-0.10274	16.99	ug/L
[	Al	27	6522.871	10.502	0.030	2.14856	18.87	ug/L
>	Sc	45	129118.326	5.578	129118.326			ug/L
	V	51	-354.099	119.773	0.020	0.71197	16.80	ug/L
	Cr	52	10406.461	6.772	0.028	1.16743	19.40	ug/L
	Mn	55	11046.417	8.812	0.071	1.86670	10.22	ug/L
	Co	59	121.668	10.959	0.001	0.01661	8.65	ug/L
	Ni	60	-0.298	4469.568	-0.001	-0.08018	16.52	ug/L
[	Cu	65	210.004	1.587	-0.000	-0.00435	271.42	ug/L
[	Zn	66	402.235	4.978	-0.002	-0.31373	8.27	ug/L
>	Ge	72	86040.941	3.681	86040.941			ug/L
	As	75	-26.853	395.739	0.003	0.33405	41.89	ug/L
[	Se	82	33.223	4.055	0.000	0.03577	54.49	ug/L
	Y	89	102.223	8.206	73.334			ug/L
[	Mo	98	542.565	5.581	0.001	0.17483	12.04	ug/L
	Ag	107	22.222	30.311	-0.000	-0.00048	401.76	ug/L
	Ag	109	18.889	18.368	-0.000	-0.00008	1179.14	ug/L
	Cd	111	9.881	18.477	0.000	0.00148	147.13	ug/L
	Cd	114	30.497	75.707	-0.000	-0.01086	130.52	ug/L
>	In	115	281721.539	3.540	281721.539			ug/L
[	Sb	121	177.780	13.303	0.000	0.04930	27.09	ug/L
[	Ba	135	5441.257	1.010	0.026	11.60631	0.34	ug/L
>	Tb	159	204872.890	1.216	204872.890			ug/L
	Ho	165	8.333	20.000	-0.000			ug/L
	Tl	205	26.111	45.285	-0.000	-0.04308	16.43	ug/L
	Pb	208	140.001	18.898	-0.000	-0.00459	241.54	ug/L
	Bi	209	7.778	32.733	-0.000			ug/L
	Th	232	7.778	53.927	-0.000	-0.00644	30.69	ug/L
[	U	238	114.445	1.682	0.001	0.04872	0.52	ug/L
[	Na	23	729242.927	1.278	5.485	0.40717	6.03	mg/L
	Mg	24	1049090.435	3.199	8.105	0.95580	2.71	mg/L
	K	39	1046747.704	3.951	2.160	0.09375	25.20	mg/L
	Ca	44	608902.123	3.068	4.556	6.28013	4.81	mg/L
	Fe	54	29779.732	6.133	0.015	0.00802	100.53	mg/L
>	Sc-1	45	129118.326	5.578	129118.326			mg/L
	Kr	83	93.890	19.554	11.111			mg/L

Sample ID: SEQ-SRD1 @5X

Report Date/Time: Tuesday, December 10, 2013 11:10:25

Page 1

### QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		110.474			
[	Be	9				-597.920	
[	Al	27				4.501	
[>	Sc	45		106.266			
	V	51				77.925	
	Cr	52				7.996	
	Mn	55				7.049	
	Co	59				6.000	
	Ni	60				-667.647	
[	Cu	65				104.919	
[	Zn	66				348.897	
[>	Ge	72		106.416			
	As	75				465.650	
[	Se	82				87.059	
	Y	89					
[	Mo	98				7.486	
	Ag	107				142.588	
	Ag	109				107.429	
	Cd	111				62.441	
	Cd	114				460.612	
[>	In	115		100.992			
[	Sb	121				110.238	
[	Ba	135				3.116	
[>	Tb	159		90.889			
	Ho	165					
	Tl	205				-483.803	
	Pb	208				325.657	
	Bi	209					
	Th	232				1288.465	
[	U	238				2.213	
[	Na	23				5.755	
	Mg	24				10.772	
	K	39				3.660	
	Ca	44				1.545	
	Fe	54				-645.644	
[>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: 1312040-BS1

Sample Date/Time: Tuesday, December 10, 2013 11:11:51

Sample Type: Spike - 3 of 1

Sample Description:

Number of Replicates: 3

Batch ID: 1312040

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\1312040-BS1 .46480

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8089.681	3.789	8089.681			ug/L
[	Be	9	5287.240	5.388	0.652	89.35655	1.61	ug/L
[	Al	27	17013060.126	3.807	134.526	9515.18663	2.69	ug/L
>	Sc	45	126468.899	3.568	126468.899			ug/L
	V	51	320049.193	5.126	2.553	91.33279	3.51	ug/L
	Cr	52	283424.275	6.092	2.191	89.92126	7.77	ug/L
	Mn	55	453514.882	3.144	3.571	94.51810	0.48	ug/L
	Co	59	387596.500	5.232	3.064	86.49940	3.60	ug/L
	Ni	60	83802.142	4.061	0.663	87.12981	6.17	ug/L
[	Cu	65	98723.378	4.198	0.780	87.82449	6.65	ug/L
[	Zn	66	53306.363	0.470	0.607	101.98613	3.68	ug/L
>	Ge	72	86991.316	4.074	86991.316			ug/L
	As	75	72184.223	4.049	0.834	94.40260	5.07	ug/L
[	Se	82	36265.245	4.857	0.418	491.27800	8.83	ug/L
	Y	89	73.334	25.613	44.445			ug/L
[	Mo	98	183871.851	2.529	0.666	93.65653	3.33	ug/L
	Ag	107	288724.717	0.712	1.046	96.75998	1.76	ug/L
	Ag	109	267886.394	1.942	0.971	93.05670	3.29	ug/L
	Cd	111	65969.209	2.878	0.239	94.69482	4.56	ug/L
	Cd	114	148481.883	1.630	0.538	94.96192	3.60	ug/L
>	In	115	276059.783	1.962	276059.783			ug/L
[	Sb	121	209499.938	2.679	0.759	95.80180	3.40	ug/L
[	Ba	135	46055.261	2.768	0.221	97.07944	3.57	ug/L
>	Tb	159	207953.967	1.409	207953.967			ug/L
	Ho	165	3.333	0.000	-0.000			ug/L
	Tl	205	167867.320	2.065	0.807	97.16187	0.74	ug/L
	Pb	208	223184.883	0.586	1.073	95.39895	1.31	ug/L
	Bi	209	30.556	15.746	0.000			ug/L
	Th	232	214234.514	1.830	1.030	97.69253	0.82	ug/L
[	U	238	211496.480	1.217	1.017	94.10744	1.14	ug/L
[	Na	23	16258636.436	2.134	128.549	9.54314	5.53	mg/L
	Mg	24	10367609.525	4.479	81.966	9.66605	3.65	mg/L
	K	39	30909921.364	9.498	238.590	10.35308	10.10	mg/L
	Ca	44	1001059.826	1.985	7.757	10.69278	4.80	mg/L
	Fe	54	2486564.028	3.995	19.479	10.49148	7.43	mg/L
>	Sc-1	45	126468.899	3.568	126468.899			mg/L
	Kr	83	109.445	5.765	26.667			mg/L

Sample ID: 1312040-BS1

Report Date/Time: Tuesday, December 10, 2013 11:13:27

Page 1

# QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[> Li	6		105.706			
[ Be	9			89.388		
[ Al	27			95.148		
[> Sc	45		104.086			
[ V	51			91.044		
[ Cr	52			89.971		
[ Mn	55			94.534		
[ Co	59			86.498		
[ Ni	60			87.144		
[ Cu	65			86.801		
[ Zn	66					
[> Ge	72		107.592			
[ As	75			94.158		
[ Se	82			98.298		
[ Y	89					
[ Mo	98			92.845		
[ Ag	107			96.760		
[ Ag	109			93.055		
[ Cd	111			94.701		
[ Cd	114					
[> In	115		98.963			
[ Sb	121			95.806		
[ Ba	135			97.107		
[> Tb	159		92.256			
[ Ho	165					
[ Tl	205			97.216		
[ Pb	208			95.406		
[ Bi	209					
[ Th	232			97.698		
[ U	238			94.109		
[ Na	23			95.519		
[ Mg	24			96.658		
[ K	39			103.739		
[ Ca	44			107.010		
[ Fe	54			104.842		
[> Sc-1	45					
[ Kr	83					

## Method 200.8 - Summary Report

### Sample ID: 1312040-MS1

Sample Date/Time: Tuesday, December 10, 2013 11:14:54

Sample Type: Spike - 3 of 2

Sample Description:

Number of Replicates: 3

Batch ID: 1312040

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\1312040-MS1.46481

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
[>	Li	6	8052.965	2.666	8052.965			ug/L
[	Be	9	5067.610	2.917	0.629	86.14028	5.30	ug/L
[	Al	27	15982241.396	2.872	126.250	8929.79513	2.96	ug/L
[>	Sc	45	126602.181	2.613	126602.181			ug/L
	V	51	325598.756	6.242	2.595	92.83636	6.35	ug/L
	Cr	52	277609.690	7.201	2.144	87.96120	9.61	ug/L
	Mn	55	482512.776	0.112	3.798	100.51814	2.71	ug/L
	Co	59	382656.849	1.591	3.023	85.33077	1.27	ug/L
	Ni	60	81662.623	6.994	0.645	84.82084	9.01	ug/L
[	Cu	65	99820.438	11.488	0.789	88.79852	14.02	ug/L
[	Zn	66	52788.787	9.177	0.616	103.58284	7.77	ug/L
[>	Ge	72	84686.152	2.082	84686.152			ug/L
	As	75	69853.293	3.306	0.828	93.75184	1.81	ug/L
[	Se	82	38752.422	3.816	0.457	538.02350	3.36	ug/L
	Y	89	449.461	10.660	420.572			ug/L
[	Mo	98	180140.367	2.327	0.659	92.75236	3.42	ug/L
	Ag	107	281805.355	1.721	1.032	95.47035	2.83	ug/L
	Ag	109	267382.016	2.236	0.979	93.88515	3.40	ug/L
	Cd	111	66298.552	3.857	0.243	96.21820	5.78	ug/L
	Cd	114	145270.857	3.318	0.532	93.92856	5.10	ug/L
[>	In	115	273105.861	1.996	273105.861			ug/L
[	Sb	121	206440.987	1.969	0.756	95.43592	3.45	ug/L
[	Ba	135	71276.935	1.047	0.351	154.03327	1.73	ug/L
[>	Tb	159	202836.743	0.699	202836.743			ug/L
	Ho	165	17.778	37.889	0.000			ug/L
	Tl	205	167383.116	1.327	0.825	99.33343	1.21	ug/L
	Pb	208	216256.880	1.710	1.066	94.76929	2.41	ug/L
	Bi	209	18.333	45.455	0.000			ug/L
	Th	232	205120.678	1.846	1.011	95.89977	1.83	ug/L
[	U	238	205361.069	0.615	1.012	93.67961	0.83	ug/L
[	Na	23	18402572.091	2.998	145.321	10.78821	5.51	mg/L
	Mg	24	14320114.571	1.714	113.142	13.34255	3.42	mg/L
	K	39	30787410.096	7.749	237.338	10.29876	8.52	mg/L
	Ca	44	3873169.048	4.057	30.459	41.98886	6.46	mg/L
	Fe	54	2360342.883	5.203	18.450	9.93725	7.46	mg/L
[>	Sc-1	45	126602.181	2.613	126602.181			mg/L
	Kr	83	131.668	7.700	48.890			mg/L

Sample ID: 1312040-MS1

Report Date/Time: Tuesday, December 10, 2013 11:16:30

Page 1

## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		105.226			
[	Be	9			86.214		
[	Al	27			89.195		
[>	Sc	45		104.196			
[	V	51			90.836		
[	Cr	52			82.556		
[	Mn	55			91.799		
[	Co	59			85.242		
[	Ni	60			84.873		
[	Cu	65			88.356		
[	Zn	66					
[>	Ge	72		104.741			
[	As	75			93.457		
[	Se	82			107.586		
[	Y	89					
[	Mo	98			91.939		
[	Ag	107			95.465		
[	Ag	109			93.880		
[	Cd	111			96.198		
[	Cd	114					
[>	In	115		97.904			
[	Sb	121			95.319		
[	Ba	135			97.755		
[>	Tb	159		89.986			
[	Ho	165					
[	Tl	205			99.370		
[	Pb	208			94.759		
[	Bi	209					
[	Th	232			95.897		
[	U	238			93.430		
[	Na	23			88.631		
[	Mg	24			90.283		
[	K	39			98.122		
[	Ca	44			100.954		
[	Fe	54			99.446		
[>	Sc-1	45					
[	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: C131107-07

Sample Date/Time: Tuesday, December 10, 2013 11:17:57

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312040

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-07.46482

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8151.981	2.310	8151.981			ug/L
[	Be	9	4.444	43.301	-0.000	-0.06418	52.61	ug/L
[	Al	27	15908.009	2.967	0.098	6.90113	5.97	ug/L
>	Sc	45	135219.661	4.614	135219.661			ug/L
	V	51	3764.331	8.254	0.051	1.81081	7.22	ug/L
	Cr	52	22677.762	3.176	0.116	4.75330	10.65	ug/L
	Mn	55	247300.140	6.011	1.814	48.01566	4.66	ug/L
	Co	59	586.695	14.128	0.004	0.11300	18.61	ug/L
	Ni	60	-339.032	62.516	-0.003	-0.40863	49.17	ug/L
[	Cu	65	700.039	4.561	0.004	0.39635	12.12	ug/L
[	Zn	66	2230.399	7.585	0.020	3.43006	6.83	ug/L
>	Ge	72	82686.364	2.467	82686.364			ug/L
	As	75	32.427	344.042	0.004	0.41560	36.85	ug/L
[	Se	82	67.779	33.559	0.000	0.54263	56.11	ug/L
	Y	89	367.789	8.908	338.900			ug/L
[	Mo	98	2850.911	6.951	0.010	1.35601	3.35	ug/L
	Ag	107	81.112	20.989	0.000	0.01933	24.78	ug/L
	Ag	109	68.334	29.572	0.000	0.01710	37.14	ug/L
	Cd	111	31.214	19.415	0.000	0.03249	28.06	ug/L
	Cd	114	76.781	19.699	0.000	0.01957	60.00	ug/L
>	In	115	275997.439	4.148	275997.439			ug/L
[	Sb	121	858.393	8.734	0.003	0.36170	7.03	ug/L
[	Ba	135	27356.965	0.576	0.134	58.64708	0.42	ug/L
>	Tb	159	204373.290	0.250	204373.290			ug/L
	Ho	165	13.889	30.199	0.000			ug/L
	Tl	205	57.222	12.126	-0.000	-0.02475	16.79	ug/L
	Pb	208	146.667	4.545	-0.000	-0.00149	199.49	ug/L
	Bi	209	8.333	40.000	-0.000			ug/L
	Th	232	101.112	15.667	0.000	0.03686	19.80	ug/L
[	U	238	737.266	2.287	0.004	0.33084	2.53	ug/L
[	Na	23	3760275.655	4.563	27.653	2.05292	4.51	mg/L
	Mg	24	5398228.063	3.670	39.920	4.70766	3.31	mg/L
	K	39	2484113.240	0.503	12.438	0.53972	7.73	mg/L
	Ca	44	3624172.161	7.357	26.656	36.74584	7.38	mg/L
	Fe	54	24358.313	15.462	-0.036	-0.01945	67.05	mg/L
>	Sc-1	45	135219.661	4.614	135219.661			mg/L
	Kr	83	97.223	12.867	14.445			mg/L



# QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		106.520			
[	Be	9					
[	Al	27					
>	Sc	45		111.288			
	V	51					
	Cr	52					
	Mn	55					
	Co	59					
	Ni	60					
[	Cu	65					
[	Zn	66					
>	Ge	72		102.267			
	As	75					
[	Se	82					
	Y	89					
[	Mo	98					
	Ag	107					
	Ag	109					
	Cd	111					
	Cd	114					
>	In	115		98.940			
[	Sb	121					
[	Ba	135					
>	Tb	159		90.667			
	Ho	165					
	Tl	205					
	Pb	208					
	Bi	209					
	Th	232					
[	U	238					
[	Na	23					
	Mg	24					
	K	39					
	Ca	44					
	Fe	54					
>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: 1312040-MS2

Sample Date/Time: Tuesday, December 10, 2013 11:21:01

Sample Type: Spike - 3 of 7

Sample Description:

Number of Replicates: 3

Batch ID: 1312040

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\1312040-MS2.46483

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
[>	Li	6	8200.940	4.507	8200.940			ug/L
[	Be	9	5069.278	2.749	0.618	84.61889	4.14	ug/L
[	Al	27	15739441.488	5.433	123.657	8746.42557	1.92	ug/L
[>	Sc	45	127242.874	4.607	127242.874			ug/L
	V	51	332797.503	6.712	2.640	94.42175	6.42	ug/L
	Cr	52	298546.267	1.572	2.296	94.22853	3.32	ug/L
	Mn	55	678106.208	6.757	5.312	140.57933	3.14	ug/L
	Co	59	386797.493	5.984	3.040	85.82628	4.87	ug/L
	Ni	60	82804.857	6.579	0.652	85.65173	9.40	ug/L
[	Cu	65	95027.812	4.223	0.746	84.00346	5.80	ug/L
[	Zn	66	52833.719	4.007	0.632	106.17818	2.76	ug/L
[>	Ge	72	82811.413	4.866	82811.413			ug/L
	As	75	71446.862	4.914	0.867	98.15346	5.40	ug/L
[	Se	82	37282.237	6.783	0.451	530.11529	8.06	ug/L
	Y	89	371.122	9.894	342.233			ug/L
[	Mo	98	175899.792	1.513	0.670	94.30815	3.07	ug/L
	Ag	107	274017.926	2.942	1.045	96.63186	2.18	ug/L
	Ag	109	259477.961	2.612	0.990	94.88364	4.30	ug/L
	Cd	111	63884.461	1.853	0.244	96.48956	2.68	ug/L
	Cd	114	141606.723	2.273	0.540	95.28647	2.21	ug/L
[>	In	115	262280.770	1.727	262280.770			ug/L
[	Sb	121	199529.268	1.516	0.761	96.03650	2.80	ug/L
[	Ba	135	70611.682	1.258	0.363	159.26291	0.89	ug/L
[>	Tb	159	194338.860	1.395	194338.860			ug/L
	Ho	165	16.111	26.034	0.000			ug/L
	Tl	205	156516.880	1.266	0.805	96.96813	2.65	ug/L
	Pb	208	209664.630	1.371	1.078	95.89043	0.81	ug/L
	Bi	209	17.778	23.593	0.000			ug/L
	Th	232	197839.290	0.947	1.018	96.55549	2.04	ug/L
[	U	238	199723.102	2.797	1.028	95.11739	3.86	ug/L
[	Na	23	18405826.952	3.101	144.567	10.73223	2.75	mg/L
	Mg	24	14062638.785	4.540	110.496	13.03051	0.97	mg/L
	K	39	32148881.098	4.225	247.085	10.72171	6.80	mg/L
	Ca	44	4362681.301	4.081	34.209	47.15750	8.51	mg/L
	Fe	54	2382835.191	2.209	18.531	9.98098	4.09	mg/L
[>	Sc-1	45	127242.874	4.607	127242.874			mg/L
	Kr	83	124.446	10.403	41.667			mg/L

Sample ID: 1312040-MS2

Report Date/Time: Tuesday, December 10, 2013 11:22:37

Page 1

## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
>	Li	6		107.160			
[	Be	9			84.683		
[	Al	27			87.395		
>	Sc	45		104.723			
[	V	51			92.611		
[	Cr	52			89.475		
[	Mn	55			92.564		
[	Co	59			85.713		
[	Ni	60			86.060		
[	Cu	65			83.607		
[	Zn	66					
>	Ge	72		102.422			
[	As	75			97.738		
[	Se	82			105.915		
[	Y	89					
[	Mo	98			92.952		
[	Ag	107			96.613		
[	Ag	109			94.867		
[	Cd	111			96.457		
[	Cd	114					
>	In	115		94.023			
[	Sb	121			95.675		
[	Ba	135			100.616		
>	Tb	159		86.216			
[	Ho	165					
[	Tl	205			96.993		
[	Pb	208			95.892		
[	Bi	209					
[	Th	232			96.519		
[	U	238			94.787		
[	Na	23			86.793		
[	Mg	24			83.228		
[	K	39			101.820		
[	Ca	44			104.117		
[	Fe	54			100.004		
>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

**Sample ID: C131107-01 @10X**

Sample Date/Time: Tuesday, December 10, 2013 11:24:04

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312040

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-01 @10X.46484

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
[>	Li	6	8040.733	4.889	8040.733			ug/L
[	Be	9	6.111	15.746	-0.000	-0.03548	33.04	ug/L
[	Al	27	17682.206	1.990	0.114	8.09484	5.12	ug/L
[>	Sc	45	131422.950	3.547	131422.950			ug/L
[	V	51	-0.957	57515.364	0.023	0.80817	18.45	ug/L
[	Cr	52	8881.864	2.369	0.015	0.63187	17.13	ug/L
[	Mn	55	354519.231	1.864	2.684	71.02319	1.72	ug/L
[	Co	59	590.028	16.221	0.004	0.11674	17.08	ug/L
[	Ni	60	-74.553	147.130	-0.001	-0.15547	72.48	ug/L
[	Cu	65	322.786	4.300	0.001	0.08903	21.75	ug/L
[	Zn	66	762.269	3.390	0.003	0.43068	15.70	ug/L
[>	Ge	72	83767.863	2.536	83767.863			ug/L
[	As	75	-101.472	196.368	0.002	0.23919	111.76	ug/L
[	Se	82	45.001	25.087	0.000	0.21400	74.95	ug/L
[	Y	89	431.126	1.243	402.237			ug/L
[	Mo	98	2728.324	10.102	0.009	1.27815	9.70	ug/L
[	Ag	107	64.445	9.083	0.000	0.01361	12.51	ug/L
[	Ag	109	76.112	15.841	0.000	0.01967	21.74	ug/L
[	Cd	111	33.751	25.180	0.000	0.03542	31.85	ug/L
[	Cd	114	90.105	17.283	0.000	0.02721	38.43	ug/L
[>	In	115	279103.496	1.849	279103.496			ug/L
[	Sb	121	933.404	11.754	0.003	0.39103	10.66	ug/L
[	Ba	135	2364.336	0.963	0.011	5.01232	1.33	ug/L
[>	Tb	159	205262.971	0.774	205262.971			ug/L
[	Ho	165	17.222	43.638	0.000			ug/L
[	Tl	205	58.889	18.414	-0.000	-0.02396	25.43	ug/L
[	Pb	208	476.674	5.280	0.002	0.14120	7.28	ug/L
[	Bi	209	8.889	28.641	-0.000			ug/L
[	Th	232	122.779	19.640	0.000	0.04673	24.62	ug/L
[	U	238	607.807	6.584	0.003	0.27102	6.62	ug/L
[	Na	23	1976103.754	4.983	14.873	1.10417	6.23	mg/L
[	Mg	24	1789412.047	0.757	13.597	1.60345	2.76	mg/L
[	K	39	2563521.136	3.387	13.575	0.58904	9.76	mg/L
[	Ca	44	2339809.237	5.386	17.641	24.31885	5.05	mg/L
[	Fe	54	31833.686	10.359	0.027	0.01429	108.20	mg/L
[>	Sc-1	45	131422.950	3.547	131422.950			mg/L
[	Kr	83	88.890	6.027	6.111			mg/L

Sample ID: C131107-01 @10X

Report Date/Time: Tuesday, December 10, 2013 11:25:41

Page 1

## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		105.066			
[	Be	9					
[	Al	27					
[>	Sc	45		108.163			
[	V	51					
[	Cr	52					
[	Mn	55					
[	Co	59					
[	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		103.605			
[	As	75					
[	Se	82					
[	Y	89					
[	Mo	98					
[	Ag	107					
[	Ag	109					
[	Cd	111					
[	Cd	114					
[>	In	115		100.054			
[	Sb	121					
[	Ba	135					
[>	Tb	159		91.062			
[	Ho	165					
[	Tl	205					
[	Pb	208					
[	Bi	209					
[	Th	232					
[	U	238					
[	Na	23					
[	Mg	24					
[	K	39					
[	Ca	44					
[	Fe	54					
[>	Sc-1	45					
[	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: Blank

Sample Date/Time: Tuesday, December 10, 2013 11:27:08

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312040

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\Blank.46485

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8230.983	5.515	8230.983			ug/L
[	Be	9	3.333	50.000	-0.001	-0.08369	34.22	ug/L
[	Al	27	2801.739	3.279	0.002	0.12844	69.94	ug/L
>	Sc	45	127308.545	4.486	127308.545			ug/L
	V	51	-764.602	200.597	0.017	0.59174	74.53	ug/L
	Cr	52	7015.619	8.160	0.003	0.12538	214.68	ug/L
	Mn	55	2143.507	28.495	0.002	0.04366	250.03	ug/L
	Co	59	46.111	7.524	0.000	0.00032	361.89	ug/L
	Ni	60	45.622	2.037	-0.000	-0.03249	9.18	ug/L
[	Cu	65	65.000	24.460	-0.001	-0.12999	12.46	ug/L
[	Zn	66	231.671	8.297	-0.004	-0.62778	6.30	ug/L
>	Ge	72	82560.612	0.139	82560.612			ug/L
	As	75	-154.267	72.759	0.001	0.16083	95.59	ug/L
[	Se	82	13.778	66.887	-0.000	-0.22249	58.95	ug/L
	Y	89	37.222	29.133	8.333			ug/L
[	Mo	98	671.779	7.879	0.002	0.24333	11.64	ug/L
	Ag	107	38.333	24.208	0.000	0.00500	60.58	ug/L
	Ag	109	35.000	0.000	0.000	0.00557	4.12	ug/L
	Cd	111	6.679	94.929	-0.000	-0.00295	305.13	ug/L
	Cd	114	25.346	56.941	-0.000	-0.01368	68.19	ug/L
>	In	115	278234.492	1.901	278234.492			ug/L
[	Sb	121	384.456	6.777	0.001	0.14366	5.97	ug/L
[	Ba	135	10.556	18.232	-0.000	-0.01584	25.40	ug/L
>	Tb	159	210537.368	0.341	210537.368			ug/L
	Ho	165	11.667	28.571	0.000			ug/L
	Tl	205	23.333	18.898	-0.000	-0.04513	5.63	ug/L
	Pb	208	129.445	5.806	-0.000	-0.01063	31.56	ug/L
	Bi	209	11.111	22.913	-0.000			ug/L
	Th	232	26.111	29.482	0.000	0.00171	202.29	ug/L
[	U	238	11.111	34.641	0.000	0.00192	88.28	ug/L
[	Na	23	7323.195	7.979	-0.117	-0.00871	5.59	mg/L
	Mg	24	3766.690	1.249	0.002	0.00023	59.44	mg/L
	K	39	718710.027	5.006	-0.307	-0.01332	141.24	mg/L
	Ca	44	20234.395	3.541	-0.008	-0.01074	145.07	mg/L
	Fe	54	29655.385	3.525	0.017	0.00920	50.68	mg/L
>	Sc-1	45	127308.545	4.486	127308.545			mg/L
	Kr	83	91.112	6.926	8.333			mg/L

Sample ID: Blank

Report Date/Time: Tuesday, December 10, 2013 11:28:45

Page 1

## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		107.552			
[	Be	9					
[	Al	27					
[>	Sc	45		104.777			
[	V	51					
[	Cr	52					
[	Mn	55					
[	Co	59					
[	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		102.112			
[	As	75					
[	Se	82					
[	Y	89					
[	Mo	98					
[	Ag	107					
[	Ag	109					
[	Cd	111					
[	Cd	114					
[>	In	115		99.742			
[	Sb	121					
[	Ba	135					
[>	Tb	159		93.402			
[	Ho	165					
[	Tl	205					
[	Pb	208					
[	Bi	209					
[	Th	232					
[	U	238					
[	Na	23					
[	Mg	24					
[	K	39					
[	Ca	44					
[	Fe	54					
[>	Sc-1	45					
[	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: SEQ-CCV

Sample Date/Time: Tuesday, December 10, 2013 11:30:11

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID:

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\SEQ-CCV.46486

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
[>	Li	6	8104.161	7.816	8104.161			ug/L
[	Be	9	2601.653	4.399	0.321	43.98589	7.87	ug/L
[	Al	27	397496.143	5.370	3.162	223.68686	1.86	ug/L
[>	Sc	45	124881.557	4.750	124881.557			ug/L
	V	51	164093.393	7.635	1.336	47.77929	3.47	ug/L
	Cr	52	151297.623	1.993	1.162	47.66747	6.59	ug/L
	Mn	55	231167.365	5.132	1.836	48.60539	3.40	ug/L
	Co	59	200054.815	7.443	1.601	45.18206	3.50	ug/L
	Ni	60	45795.458	7.116	0.366	48.16770	7.14	ug/L
[	Cu	65	53842.630	6.223	0.430	48.41549	7.10	ug/L
[	Zn	66	26498.845	1.753	0.303	50.96409	3.19	ug/L
[>	Ge	72	85567.456	1.913	85567.456			ug/L
	As	75	36201.286	3.052	0.426	48.26831	1.70	ug/L
[	Se	82	3599.746	2.033	0.042	49.08825	2.23	ug/L
	Y	89	39.445	2.440	10.556			ug/L
[	Mo	98	97974.161	2.605	0.344	48.43659	4.85	ug/L
	Ag	107	150437.917	3.820	0.529	48.93517	1.81	ug/L
	Ag	109	143191.192	3.283	0.504	48.32726	5.79	ug/L
	Cd	111	34275.655	3.568	0.121	47.78851	5.81	ug/L
	Cd	114	77920.046	0.917	0.274	48.37550	2.67	ug/L
[>	In	115	284278.709	2.424	284278.709			ug/L
[	Sb	121	107130.953	0.780	0.377	47.56025	2.13	ug/L
[	Ba	135	23960.854	1.963	0.111	48.78088	2.69	ug/L
[>	Tb	159	215207.568	0.757	215207.568			ug/L
	Ho	165	9.444	56.727	-0.000			ug/L
	Tl	205	89534.658	4.033	0.415	50.04382	3.40	ug/L
	Pb	208	119551.350	1.247	0.555	49.34675	1.97	ug/L
	Bi	209	17.222	36.638	0.000			ug/L
	Th	232	113386.021	1.153	0.527	49.95744	0.41	ug/L
[	U	238	113687.099	1.791	0.528	48.88311	2.55	ug/L
[	Na	23	7841285.350	4.008	62.774	4.66019	8.36	mg/L
	Mg	24	4805241.325	2.116	38.514	4.54192	5.64	mg/L
	K	39	15048232.662	6.983	114.666	4.97570	7.89	mg/L
	Ca	44	475802.316	1.556	3.647	5.02745	3.46	mg/L
	Fe	54	1173629.877	2.944	9.204	4.95755	7.78	mg/L
[>	Sc-1	45	124881.557	4.750	124881.557			mg/L
	Kr	83	93.334	17.035	10.556			mg/L

Sample ID: SEQ-CCV

Report Date/Time: Tuesday, December 10, 2013 11:31:47

Page 1



## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		105.895			
[	Be	9	87.972				
[	Al	27	89.475				
[>	Sc	45		102.779			
	V	51	95.559				
	Cr	52	95.335				
	Mn	55	97.211				
	Co	59	90.364				
	Ni	60	96.335				
[	Cu	65	96.831				
[	Zn	66	101.928				
[>	Ge	72		105.831			
	As	75	96.537				
[	Se	82	98.177				
	Y	89					
[	Mo	98	96.873				
	Ag	107	97.870				
	Ag	109	96.655				
	Cd	111	95.577				
	Cd	114					
[>	In	115		101.909			
[	Sb	121	95.120				
[	Ba	135	97.562				
[>	Tb	159		95.474			
	Ho	165					
	Tl	205	100.088				
	Pb	208	98.694				
	Bi	209					
	Th	232	99.915				
[	U	238	97.766				
[	Na	23	93.204				
	Mg	24	90.838				
	K	39	99.514				
	Ca	44	100.549				
	Fe	54	99.151				
[>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: SEQ-CCB

Sample Date/Time: Tuesday, December 10, 2013 11:33:28

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID:

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\SEQ-CCB.46487

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	7834.353	2.239	7834.353			ug/L
L	Be	9	5.556	17.321	-0.000	-0.04221	36.43	ug/L
[	Al	27	2501.058	8.683	0.000	0.01675	334.47	ug/L
>	Sc	45	122108.384	5.198	122108.384			ug/L
	V	51	-2131.324	26.540	0.005	0.19108	68.25	ug/L
	Cr	52	6573.458	3.518	0.002	0.06744	104.53	ug/L
	Mn	55	1973.308	28.860	0.001	0.03311	433.62	ug/L
	Co	59	69.445	13.856	0.000	0.00609	29.90	ug/L
	Ni	60	81.150	26.881	0.000	0.00704	266.14	ug/L
L	Cu	65	213.337	6.766	0.000	0.00959	237.87	ug/L
[	Zn	66	483.352	8.866	-0.001	-0.13953	61.23	ug/L
>	Ge	72	84842.834	9.040	84842.834			ug/L
	As	75	-160.399	86.943	0.001	0.14647	134.08	ug/L
L	Se	82	25.778	15.099	-0.000	-0.05946	107.07	ug/L
	Y	89	40.000	8.333	11.111			ug/L
[	Mo	98	592.631	17.848	0.001	0.20066	25.82	ug/L
	Ag	107	49.445	38.776	0.000	0.00856	73.72	ug/L
	Ag	109	48.889	20.549	0.000	0.01022	33.36	ug/L
	Cd	111	18.193	23.300	0.000	0.01330	44.01	ug/L
	Cd	114	41.708	28.930	-0.000	-0.00363	204.84	ug/L
>	In	115	280449.215	0.588	280449.215			ug/L
L	Sb	121	377.789	1.019	0.001	0.13939	1.30	ug/L
[	Ba	135	15.556	22.304	-0.000	-0.00627	108.56	ug/L
>	Tb	159	215984.942	1.858	215984.942			ug/L
	Ho	165	7.778	12.372	-0.000			ug/L
	Tl	205	106.668	24.055	0.000	0.00088	1519.73	ug/L
	Pb	208	164.445	8.192	0.000	0.00238	216.39	ug/L
	Bi	209	11.111	17.321	-0.000			ug/L
	Th	232	53.889	7.783	0.000	0.01363	15.36	ug/L
L	U	238	17.778	32.924	0.000	0.00466	55.18	ug/L
[	Na	23	24657.487	4.126	0.027	0.00200	15.07	mg/L
	Mg	24	3963.486	9.555	0.005	0.00056	32.92	mg/L
	K	39	745654.878	3.527	0.154	0.00669	234.85	mg/L
	Ca	44	19244.595	2.452	-0.009	-0.01279	52.09	mg/L
	Fe	54	28050.076	8.686	0.013	0.00726	75.22	mg/L
>	Sc-1	45	122108.384	5.198	122108.384			mg/L
	Kr	83	95.556	13.091	12.778			mg/L

Sample ID: SEQ-CCB

Report Date/Time: Tuesday, December 10, 2013 11:35:03

Page 1

# QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		102.369			
[	Be	9					
[	Al	27					
[>	Sc	45		100.497			
[	V	51					
[	Cr	52					
[	Mn	55					
[	Co	59					
[	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		104.935			
[	As	75					
[	Se	82					
[	Y	89					
[	Mo	98					
[	Ag	107					
[	Ag	109					
[	Cd	111					
[	Cd	114					
[>	In	115		100.536			
[	Sb	121					
[	Ba	135					
[>	Tb	159		95.819			
[	Ho	165					
[	Tl	205					
[	Pb	208					
[	Bi	209					
[	Th	232					
[	U	238					
[	Na	23					
[	Mg	24					
[	K	39					
[	Ca	44					
[	Fe	54					
[>	Sc-1	45					
[	Kr	83					

## Method 200.8 - Summary Report

**Sample ID: C131107-09** *016x hrz/roly*

Sample Date/Time: Tuesday, December 10, 2013 11:36:46

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312040

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-09.46488

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8409.544	1.535	8409.544			ug/L
[	Be	9	5.000	33.333	-0.000	-0.05758	48.95	ug/L
[	Al	27	7749.280	10.303	0.041	2.89599	18.79	ug/L
>	Sc	45	127222.271	8.486	127222.271			ug/L
	V	51	-251.803	639.390	0.021	0.75452	56.89	ug/L
	Cr	52	9204.553	2.113	0.020	0.83987	31.42	ug/L
	Mn	55	886708.514	4.168	6.977	184.64927	6.29	ug/L
	Co	59	1314.027	6.631	0.010	0.28334	12.74	ug/L
	Ni	60	229.636	37.861	0.001	0.15752	54.67	ug/L
[	Cu	65	1470.173	4.262	0.010	1.12090	12.68	ug/L
[	Zn	66	257355.800	3.524	3.095	520.16584	7.86	ug/L
>	Ge	72	83321.784	8.844	83321.784			ug/L
	As	75	-153.225	39.139	0.001	0.16317	53.45	ug/L
[	Se	82	30.334	42.319	0.000	0.01178	1654.17	ug/L
	Y	89	99.445	13.650	70.556			ug/L
[	Mo	98	2828.060	2.574	0.010	1.35161	4.95	ug/L
	Ag	107	23.889	10.657	0.000	0.00029	243.58	ug/L
	Ag	109	17.778	28.641	-0.000	-0.00025	789.49	ug/L
	Cd	111	1820.542	3.218	0.007	2.61289	6.25	ug/L
	Cd	114	3970.250	2.254	0.014	2.52043	4.36	ug/L
>	In	115	275033.821	3.190	275033.821			ug/L
[	Sb	121	213.337	12.279	0.001	0.06754	21.98	ug/L
[	Ba	135	917.290	3.735	0.004	1.87863	3.54	ug/L
>	Tb	159	209835.026	0.863	209835.026			ug/L
	Ho	165	6.667	66.144	-0.000			ug/L
	Tl	205	13.889	24.980	-0.000	-0.05050	4.04	ug/L
	Pb	208	138.334	3.188	-0.000	-0.00670	20.72	ug/L
	Bi	209	3.889	49.487	-0.000			ug/L
	Th	232	28.333	20.377	0.000	0.00276	96.40	ug/L
[	U	238	802.829	5.339	0.004	0.35100	4.84	ug/L
[	Na	23	1696033.214	1.434	13.219	0.98137	8.50	mg/L
	Mg	24	1837181.222	4.848	14.463	1.70560	7.40	mg/L
	K	39	1476125.787	5.708	5.736	0.24891	29.68	mg/L
	Ca	44	2126383.333	4.027	16.624	22.91688	8.97	mg/L
	Fe	54	31095.727	8.952	0.028	0.01530	21.73	mg/L
>	Sc-1	45	127222.271	8.486	127222.271			mg/L
	Kr	83	96.112	13.016	13.334			mg/L

# QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		109.885			
[	Be	9					
[	Al	27					
[>	Sc	45		104.706			
[	V	51					
[	Cr	52					
[	Mn	55					
[	Co	59					
[	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		103.053			
[	As	75					
[	Se	82					
[	Y	89					
[	Mo	98					
[	Ag	107					
[	Ag	109					
[	Cd	111					
[	Cd	114					
[>	In	115		98.595			
[	Sb	121					
[	Ba	135					
[>	Tb	159		93.090			
[	Ho	165					
[	Tl	205					
[	Pb	208					
[	Bi	209					
[	Th	232					
[	U	238					
[	Na	23					
[	Mg	24					
[	K	39					
[	Ca	44					
[	Fe	54					
[>	Sc-1	45					
[	Kr	83					

## Method 200.8 - Summary Report

Sample ID: C131107-12 @10x 12/10/13

Sample Date/Time: Tuesday, December 10, 2013 11:39:50

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312040

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-12.46489

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8124.746	8.316	8124.746			ug/L
[	Be	9	5.556	17.321	-0.000	-0.04473	47.05	ug/L
[	Al	27	4751.817	9.527	0.016	1.15501	24.36	ug/L
>	Sc	45	130272.168	5.798	130272.168			ug/L
	V	51	-942.266	55.808	0.015	0.54786	27.49	ug/L
	Cr	52	9191.236	9.243	0.019	0.76359	49.00	ug/L
	Mn	55	865484.676	1.398	6.646	175.89017	6.82	ug/L
	Co	59	1296.801	5.049	0.010	0.27209	10.20	ug/L
	Ni	60	336.831	39.387	0.002	0.26369	53.80	ug/L
[	Cu	65	860.615	11.264	0.005	0.55887	19.01	ug/L
[	Zn	66	236597.272	2.792	2.806	471.51521	4.24	ug/L
>	Ge	72	84243.952	5.446	84243.952			ug/L
	As	75	-133.807	34.853	0.002	0.19424	26.89	ug/L
[	Se	82	27.111	67.928	-0.000	-0.03180	886.48	ug/L
	Y	89	101.112	9.936	72.223			ug/L
[	Mo	98	2726.409	1.875	0.009	1.25495	4.45	ug/L
	Ag	107	21.111	9.116	-0.000	-0.00085	92.39	ug/L
	Ag	109	11.111	22.913	-0.000	-0.00274	32.31	ug/L
	Cd	111	1673.156	4.355	0.006	2.32299	6.55	ug/L
	Cd	114	3830.952	4.597	0.013	2.35208	5.56	ug/L
>	In	115	284047.767	2.212	284047.767			ug/L
[	Sb	121	153.891	5.343	0.000	0.03780	13.82	ug/L
[	Ba	135	937.848	3.661	0.004	1.92469	3.54	ug/L
>	Tb	159	209504.721	0.714	209504.721			ug/L
	Ho	165	10.000	16.667	0.000			ug/L
	Tl	205	20.000	50.690	-0.000	-0.04699	12.29	ug/L
	Pb	208	152.778	10.982	-0.000	-0.00044	1721.58	ug/L
	Bi	209	7.222	13.323	-0.000			ug/L
	Th	232	16.111	39.165	-0.000	-0.00274	106.41	ug/L
[	U	238	811.720	6.562	0.004	0.35547	6.16	ug/L
[	Na	23	1692371.497	0.474	12.847	0.95373	6.25	mg/L
	Mg	24	1817329.844	1.129	13.948	1.64484	4.70	mg/L
	K	39	1503186.009	7.016	5.618	0.24379	22.51	mg/L
	Ca	44	2207145.035	1.817	16.803	23.16395	4.43	mg/L
	Fe	54	30192.008	6.591	0.017	0.00895	151.97	mg/L
>	Sc-1	45	130272.168	5.798	130272.168			mg/L
	Kr	83	93.890	18.814	11.111			mg/L

# QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		106.164			
[	Be	9					
[	Al	27					
[>	Sc	45		107.216			
	V	51					
	Cr	52					
	Mn	55					
	Co	59					
	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		104.194			
	As	75					
[	Se	82					
	Y	89					
[	Mo	98					
	Ag	107					
	Ag	109					
	Cd	111					
	Cd	114					
[>	In	115		101.826			
[	Sb	121					
[	Ba	135					
[>	Tb	159		92.944			
	Ho	165					
	Tl	205					
	Pb	208					
	Bi	209					
	Th	232					
[	U	238					
[	Na	23					
	Mg	24					
	K	39					
	Ca	44					
	Fe	54					
[>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

**Sample ID: C131107-14**

*@ 168 h 12/10/13*

Sample Date/Time: Tuesday, December 10, 2013 11:42:53

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312040

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-14.46490

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
[>	Li	6	8296.064	3.963	8296.064			ug/L
[	Be	9	6.667	43.301	-0.000	-0.03020	141.14	ug/L
[	Al	27	2682.244	7.297	0.000	0.01383	1074.96	ug/L
[>	Sc	45	131836.538	7.054	131836.538			ug/L
	V	51	-161.435	676.325	0.021	0.76607	38.58	ug/L
	Cr	52	9962.403	6.825	0.024	0.97471	39.95	ug/L
	Mn	55	817177.054	6.798	6.188	163.76291	4.31	ug/L
	Co	59	1145.661	3.255	0.008	0.23614	7.58	ug/L
	Ni	60	218.589	58.277	0.001	0.14469	100.41	ug/L
[	Cu	65	353.343	5.316	0.001	0.11554	31.90	ug/L
[	Zn	66	205457.930	6.001	2.446	411.14244	7.17	ug/L
[>	Ge	72	83807.653	1.197	83807.653			ug/L
	As	75	-123.468	38.496	0.002	0.20594	30.20	ug/L
[	Se	82	21.667	88.700	-0.000	-0.11458	236.98	ug/L
	Y	89	94.445	12.395	65.556			ug/L
[	Mo	98	2522.069	3.289	0.008	1.18134	3.43	ug/L
	Ag	107	12.778	19.924	-0.000	-0.00348	24.17	ug/L
	Ag	109	7.778	12.372	-0.000	-0.00381	9.02	ug/L
	Cd	111	847.859	2.005	0.003	1.19698	2.42	ug/L
	Cd	114	1973.508	3.189	0.007	1.22468	3.66	ug/L
[>	In	115	277720.828	0.458	277720.828			ug/L
[	Sb	121	135.557	11.156	0.000	0.03097	23.06	ug/L
[	Ba	135	881.173	3.076	0.004	1.82777	3.26	ug/L
[>	Tb	159	207081.383	0.190	207081.383			ug/L
	Ho	165	5.556	45.826	-0.000			ug/L
	Tl	205	25.556	38.214	-0.000	-0.04361	13.06	ug/L
	Pb	208	130.556	11.154	-0.000	-0.00924	68.55	ug/L
	Bi	209	6.111	31.492	-0.000			ug/L
	Th	232	6.111	56.773	-0.000	-0.00725	21.96	ug/L
[	U	238	800.607	3.656	0.004	0.35478	3.85	ug/L
[	Na	23	1842590.918	2.150	13.836	1.02712	5.44	mg/L
	Mg	24	2039190.221	4.494	15.466	1.82390	4.65	mg/L
	K	39	1604956.229	6.491	6.272	0.27217	22.72	mg/L
	Ca	44	2242771.093	3.378	16.880	23.27020	5.04	mg/L
	Fe	54	28870.206	7.402	0.004	0.00208	628.98	mg/L
[>	Sc-1	45	131836.538	7.054	131836.538			mg/L
	Kr	83	116.668	10.000	33.889			mg/L

Sample ID: C131107-14

Report Date/Time: Tuesday, December 10, 2013 11:44:29

Page 1



## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		108.403			
[	Be	9					
[	Al	27					
>	Sc	45		108.503			
	V	51					
	Cr	52					
	Mn	55					
	Co	59					
	Ni	60					
[	Cu	65					
[	Zn	66					
>	Ge	72		103.654			
	As	75					
[	Se	82					
	Y	89					
[	Mo	98					
	Ag	107					
	Ag	109					
	Cd	111					
	Cd	114					
>	In	115		99.558			
[	Sb	121					
[	Ba	135					
>	Tb	159		91.869			
	Ho	165					
	Tl	205					
	Pb	208					
	Bi	209					
	Th	232					
[	U	238					
[	Na	23					
	Mg	24					
	K	39					
	Ca	44					
	Fe	54					
>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

Sample ID: C131107-16 @ 102 8/12/10/13

Sample Date/Time: Tuesday, December 10, 2013 11:45:56

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312040

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-16.46491

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8545.853	6.103	8545.853			ug/L
[	Be	9	5.000	88.192	-0.000	-0.06140	104.56	ug/L
[	Al	27	6511.729	4.791	0.028	1.99773	16.09	ug/L
>	Sc	45	134783.830	5.330	134783.830			ug/L
	V	51	-475.643	84.447	0.019	0.68815	14.89	ug/L
	Cr	52	11075.929	4.297	0.030	1.23286	14.33	ug/L
	Mn	55	764982.000	5.348	5.661	149.81350	0.22	ug/L
	Co	59	945.627	1.966	0.007	0.18851	6.17	ug/L
	Ni	60	107.972	100.346	0.000	0.02903	372.58	ug/L
[	Cu	65	367.789	2.281	0.001	0.12017	19.59	ug/L
[	Zn	66	187052.142	7.651	2.165	363.89259	2.98	ug/L
>	Ge	72	86127.333	6.907	86127.333			ug/L
	As	75	-350.951	20.200	-0.001	-0.09432	127.80	ug/L
[	Se	82	39.889	51.251	0.000	0.12034	206.65	ug/L
	Y	89	96.112	8.195	67.223			ug/L
[	Mo	98	2275.612	2.340	0.007	1.03707	5.54	ug/L
	Ag	107	22.222	26.339	-0.000	-0.00046	439.41	ug/L
	Ag	109	11.667	14.286	-0.000	-0.00252	25.92	ug/L
	Cd	111	1244.051	1.412	0.004	1.73149	3.51	ug/L
	Cd	114	2596.163	2.667	0.009	1.59230	4.89	ug/L
>	In	115	282753.819	2.957	282753.819			ug/L
[	Sb	121	106.112	12.598	0.000	0.01672	36.75	ug/L
[	Ba	135	917.290	1.524	0.004	1.90185	0.88	ug/L
>	Tb	159	207327.352	1.054	207327.352			ug/L
	Ho	165	11.111	22.913	0.000			ug/L
	Tl	205	15.556	40.564	-0.000	-0.04942	7.53	ug/L
	Pb	208	131.667	2.193	-0.000	-0.00884	8.78	ug/L
	Bi	209	11.111	70.887	-0.000			ug/L
	Th	232	6.111	83.320	-0.000	-0.00727	31.57	ug/L
[	U	238	775.604	2.854	0.004	0.34315	2.04	ug/L
[	Na	23	2197491.454	7.769	16.115	1.19631	2.48	mg/L
	Mg	24	2299098.790	4.185	17.043	2.00982	3.43	mg/L
	K	39	1841919.209	0.148	7.730	0.33541	9.65	mg/L
	Ca	44	2367647.717	11.162	17.363	23.93484	5.99	mg/L
	Fe	54	32295.596	14.479	0.023	0.01229	96.24	mg/L
>	Sc-1	45	134783.830	5.330	134783.830			mg/L
	Kr	83	82.778	12.945	-0.000			mg/L

Sample ID: C131107-16

Report Date/Time: Tuesday, December 10, 2013 11:47:32

Page 1

## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		111.666			
[	Be	9					
[	Al	27					
>	Sc	45		110.929			
	V	51					
	Cr	52					
	Mn	55					
	Co	59					
	Ni	60					
[	Cu	65					
[	Zn	66					
>	Ge	72		106.523			
	As	75					
[	Se	82					
	Y	89					
[	Mo	98					
	Ag	107					
	Ag	109					
	Cd	111					
	Cd	114					
>	In	115		101.362			
[	Sb	121					
[	Ba	135					
>	Tb	159		91.978			
	Ho	165					
	Tl	205					
	Pb	208					
	Bi	209					
	Th	232					
[	U	238					
[	Na	23					
	Mg	24					
	K	39					
	Ca	44					
	Fe	54					
>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: C131107-19

Sample Date/Time: Tuesday, December 10, 2013 11:48:59

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312040

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-19.46492

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8770.055	6.501	8770.055			ug/L
[	Be	9	7.778	12.372	-0.000	-0.01795	54.85	ug/L
[	Al	27	21508.695	5.762	0.132	9.31227	9.07	ug/L
>	Sc	45	141776.098	2.282	141776.098			ug/L
	V	51	7679.026	18.011	0.077	2.74517	11.68	ug/L
	Cr	52	34450.357	4.303	0.191	7.83021	5.84	ug/L
	Mn	55	888994.787	7.788	6.261	165.69513	9.09	ug/L
	Co	59	1351.813	7.831	0.009	0.25962	10.37	ug/L
	Ni	60	-310.380	100.434	-0.003	-0.36510	77.77	ug/L
	Cu	65	1319.584	4.061	0.008	0.86006	4.05	ug/L
[	Zn	66	104998.185	3.698	1.230	206.67625	3.50	ug/L
>	Ge	72	84927.611	1.087	84927.611			ug/L
	As	75	355.466	19.908	0.007	0.84604	11.00	ug/L
	Se	82	47.001	32.878	0.000	0.23153	90.23	ug/L
	Y	89	653.368	3.186	624.479			ug/L
[	Mo	98	2584.195	2.015	0.009	1.25836	6.13	ug/L
	Ag	107	122.223	12.961	0.000	0.03451	20.38	ug/L
	Ag	109	102.223	6.173	0.000	0.03006	12.07	ug/L
	Cd	111	573.321	6.226	0.002	0.83263	5.40	ug/L
	Cd	114	1239.999	2.511	0.004	0.78588	6.59	ug/L
>	In	115	268785.002	3.970	268785.002			ug/L
	Sb	121	230.004	6.276	0.001	0.07751	11.29	ug/L
[	Ba	135	26543.473	1.197	0.142	62.30227	0.44	ug/L
>	Tb	159	186674.926	1.437	186674.926			ug/L
	Ho	165	15.556	22.304	0.000			ug/L
	Tl	205	50.556	9.517	-0.000	-0.02587	11.25	ug/L
	Pb	208	3000.282	3.486	0.015	1.36401	2.89	ug/L
	Bi	209	130.001	14.276	0.001			ug/L
	Th	232	17.778	14.321	-0.000	-0.00102	125.84	ug/L
	U	238	1110.654	5.917	0.006	0.54791	7.26	ug/L
[	Na	23	6895176.350	4.165	48.460	3.59755	3.59	mg/L
	Mg	24	8479031.946	2.861	59.798	7.05185	3.63	mg/L
	K	39	4924125.650	2.212	28.793	1.24939	5.37	mg/L
	Ca	44	6227899.886	3.459	43.772	60.34094	3.86	mg/L
	Fe	54	31278.746	13.399	0.004	0.00231	583.66	mg/L
>	Sc-1	45	141776.098	2.282	141776.098			mg/L
	Kr	83	110.001	4.545	27.223			mg/L

# QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		114.596			
[	Be	9					
[	Al	27					
[>	Sc	45		116.684			
[	V	51					
[	Cr	52					
[	Mn	55					
[	Co	59					
[	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		105.039			
[	As	75					
[	Se	82					
[	Y	89					
[	Mo	98					
[	Ag	107					
[	Ag	109					
[	Cd	111					
[	Cd	114					
[>	In	115		96.355			
[	Sb	121					
[	Ba	135					
[>	Tb	159		82.816			
[	Ho	165					
[	Tl	205					
[	Pb	208					
[	Bi	209					
[	Th	232					
[	U	238					
[	Na	23					
[	Mg	24					
[	K	39					
[	Ca	44					
[	Fe	54					
[>	Sc-1	45					
[	Kr	83					

## Method 200.8 - Summary Report

Sample ID: C131107-22 *Q/ox 12/10/13*

Sample Date/Time: Tuesday, December 10, 2013 11:52:01

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312040

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-22.46493

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	9323.630	5.580	9323.630			ug/L
[	Be	9	6.667	43.301	-0.000	-0.04260	84.28	ug/L
[	Al	27	2037.555	4.867	-0.007	-0.47661	21.38	ug/L
>	Sc	45	151775.042	6.755	151775.042			ug/L
	V	51	10257.255	10.356	0.091	3.24747	13.11	ug/L
	Cr	52	44860.055	4.255	0.245	10.04280	12.93	ug/L
	Mn	55	325456.737	4.736	2.131	56.41129	2.59	ug/L
	Co	59	1193.447	4.605	0.008	0.21237	4.55	ug/L
	Ni	60	-694.954	37.405	-0.005	-0.67650	30.41	ug/L
[	Cu	65	419.459	4.431	0.001	0.12449	24.34	ug/L
[	Zn	66	9273.554	5.181	0.096	16.15561	7.49	ug/L
>	Ge	72	90456.874	4.514	90456.874			ug/L
	As	75	2453.122	3.056	0.030	3.44478	2.66	ug/L
[	Se	82	17.667	139.113	-0.000	-0.18007	180.42	ug/L
	Y	89	1742.465	2.488	1713.576			ug/L
[	Mo	98	1293.422	4.077	0.004	0.58273	3.31	ug/L
	Ag	107	8.889	28.641	-0.000	-0.00466	19.46	ug/L
	Ag	109	6.667	43.301	-0.000	-0.00410	25.94	ug/L
	Cd	111	36.410	10.461	0.000	0.04143	12.40	ug/L
	Cd	114	49.367	40.580	0.000	0.00258	500.67	ug/L
>	In	115	267883.791	1.243	267883.791			ug/L
[	Sb	121	118.334	9.859	0.000	0.02514	24.42	ug/L
[	Ba	135	1049.533	7.204	0.006	2.59031	7.18	ug/L
>	Tb	159	175070.989	0.761	175070.989			ug/L
	Ho	165	20.556	40.810	0.000			ug/L
	Tl	205	137.224	1.855	0.000	0.03594	6.86	ug/L
	Pb	208	405.005	2.968	0.002	0.14041	3.28	ug/L
	Bi	209	9.444	83.397	-0.000			ug/L
	Th	232	7.778	53.927	-0.000	-0.00584	38.57	ug/L
[	U	238	259.450	7.076	0.001	0.13412	6.55	ug/L
[	Na	23	9746258.968	5.386	64.335	4.77607	10.88	mg/L
	Mg	24	8774647.280	3.500	57.873	6.82485	3.36	mg/L
	K	39	8093734.317	5.201	47.655	2.06786	13.54	mg/L
	Ca	44	5315989.543	5.194	34.900	48.11025	4.03	mg/L
	Fe	54	106936.639	9.984	0.490	0.26368	13.87	mg/L
>	Sc-1	45	151775.042	6.755	151775.042			mg/L
	Kr	83	91.112	15.771	8.333			mg/L

Sample ID: C131107-22

Report Date/Time: Tuesday, December 10, 2013 11:53:38

Page 1

# QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[> Li	6		121.829			
[ Be	9					
[ Al	27					
[> Sc	45		124.913			
[ V	51					
[ Cr	52					
[ Mn	55					
[ Co	59					
[ Ni	60					
[ Cu	65					
[ Zn	66					
[> Ge	72		111.878			
[ As	75					
[ Se	82					
[ Y	89					
[ Mo	98					
[ Ag	107					
[ Ag	109					
[ Cd	111					
[ Cd	114					
[> In	115		96.032			
[ Sb	121					
[ Ba	135					
[> Tb	159		77.668			
[ Ho	165					
[ Tl	205					
[ Pb	208					
[ Bi	209					
[ Th	232					
[ U	238					
[ Na	23					
[ Mg	24					
[ K	39					
[ Ca	44					
[ Fe	54					
[> Sc-1	45					
[ Kr	83					

# Method 200.8 - Summary Report

Sample ID: C131107-25 @10x 12/10/13

Sample Date/Time: Tuesday, December 10, 2013 11:55:04

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312040

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-25.46494

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

## Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	9302.484	4.737	9302.484			ug/L
L	Be	9	7.222	66.617	-0.000	-0.03467	197.01	ug/L
[	Al	27	6060.757	14.603	0.022	1.54160	24.13	ug/L
>	Sc	45	144194.799	6.325	144194.799			ug/L
	V	51	2149.452	55.959	0.038	1.35734	23.90	ug/L
	Cr	52	18167.500	3.618	0.074	3.04410	14.85	ug/L
	Mn	55	2484024.213	6.497	17.221	455.76568	4.05	ug/L
	Co	59	2594.431	10.000	0.018	0.49892	11.02	ug/L
	Ni	60	344.340	64.113	0.002	0.23738	89.38	ug/L
L	Cu	65	317.230	6.653	0.001	0.06061	42.39	ug/L
[	Zn	66	5740.414	2.104	0.059	9.96815	5.38	ug/L
>	Ge	72	87266.147	3.836	87266.147			ug/L
	As	75	281.850	48.664	0.006	0.73505	22.95	ug/L
L	Se	82	29.223	18.440	-0.000	-0.02612	222.25	ug/L
	Y	89	523.355	10.206	494.466			ug/L
[	Mo	98	1914.137	5.148	0.006	0.91049	3.69	ug/L
	Ag	107	11.111	8.660	-0.000	-0.00390	6.76	ug/L
	Ag	109	7.778	49.487	-0.000	-0.00372	36.09	ug/L
	Cd	111	18.333	86.627	0.000	0.01466	157.73	ug/L
	Cd	114	25.800	41.961	-0.000	-0.01281	55.81	ug/L
>	In	115	267363.370	1.888	267363.370			ug/L
L	Sb	121	103.334	16.993	0.000	0.01814	45.77	ug/L
[	Ba	135	2366.004	3.806	0.013	5.86247	4.67	ug/L
>	Tb	159	175866.071	1.837	175866.071			ug/L
	Ho	165	12.222	31.492	0.000			ug/L
	Tl	205	23.889	17.558	-0.000	-0.04211	6.93	ug/L
	Pb	208	298.892	2.514	0.001	0.08585	4.41	ug/L
	Bi	209	8.333	40.000	-0.000			ug/L
	Th	232	11.111	67.639	-0.000	-0.00401	103.86	ug/L
L	U	238	171.113	7.566	0.001	0.08713	8.92	ug/L
[	Na	23	4855634.611	4.753	33.585	2.49324	7.57	mg/L
	Mg	24	4549162.952	4.527	31.546	3.72011	1.93	mg/L
	K	39	5485532.947	6.462	32.142	1.39473	8.48	mg/L
	Ca	44	2387140.528	4.764	16.400	22.60764	2.15	mg/L
	Fe	54	72567.358	3.727	0.288	0.15502	4.99	mg/L
>	Sc-1	45	144194.799	6.325	144194.799			mg/L
	Kr	83	93.334	9.449	10.556			mg/L

Sample ID: C131107-25

Report Date/Time: Tuesday, December 10, 2013 11:56:40

Page 1



## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
>	Li	6		121.553			
[	Be	9					
[	Al	27					
>	Sc	45		118.675			
	V	51					
	Cr	52					
	Mn	55					
	Co	59					
	Ni	60					
[	Cu	65					
[	Zn	66					
>	Ge	72		107.932			
	As	75					
[	Se	82					
	Y	89					
[	Mo	98					
	Ag	107					
	Ag	109					
	Cd	111					
	Cd	114					
>	In	115		95.845			
[	Sb	121					
[	Ba	135					
>	Tb	159		78.020			
	Ho	165					
	Tl	205					
	Pb	208					
	Bi	209					
	Th	232					
[	U	238					
[	Na	23					
	Mg	24					
	K	39					
	Ca	44					
	Fe	54					
>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

Sample ID: C131107-28

Sample Date/Time: Tuesday, December 10, 2013 11:58:07

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312040

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-28.46495

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	9022.630	5.139	9022.630			ug/L
[	Be	9	2.222	43.301	-0.001	-0.10559	13.20	ug/L
[	Al	27	2551.633	5.066	-0.002	-0.16007	40.85	ug/L
>	Sc	45	142349.646	7.394	142349.646			ug/L
	V	51	-525.868	170.455	0.019	0.68407	31.34	ug/L
	Cr	52	11228.442	6.870	0.027	1.10967	34.95	ug/L
	Mn	55	-4677.276	22.173	-0.048	-1.27829	18.87	ug/L
	Co	59	232.782	18.005	0.001	0.03609	16.85	ug/L
	Ni	60	-512.322	38.763	-0.004	-0.56402	40.55	ug/L
[	Cu	65	269.450	5.151	0.000	0.02591	66.90	ug/L
[	Zn	66	1491.845	4.535	0.010	1.74645	13.52	ug/L
>	Ge	72	88286.454	3.841	88286.454			ug/L
	As	75	-215.763	34.154	0.001	0.09753	85.14	ug/L
[	Se	82	29.889	87.434	-0.000	-0.01590	2209.50	ug/L
	Y	89	400.568	9.998	371.680			ug/L
[	Mo	98	1293.414	5.121	0.004	0.57071	2.98	ug/L
	Ag	107	10.556	36.464	-0.000	-0.00414	33.33	ug/L
	Ag	109	5.556	69.282	-0.000	-0.00452	30.95	ug/L
	Cd	111	62.425	21.339	0.000	0.07821	24.01	ug/L
	Cd	114	156.044	18.706	0.000	0.07099	24.48	ug/L
>	In	115	272676.414	3.065	272676.414			ug/L
[	Sb	121	54.445	26.393	-0.000	-0.00534	135.87	ug/L
[	Ba	135	653.923	4.716	0.004	1.54911	3.88	ug/L
>	Tb	159	180613.229	0.957	180613.229			ug/L
	Ho	165	7.222	48.038	-0.000			ug/L
	Tl	205	25.000	24.037	-0.000	-0.04181	9.45	ug/L
	Pb	208	132.223	4.772	-0.000	-0.00020	1687.05	ug/L
	Bi	209	6.667	50.000	-0.000			ug/L
	Th	232	2.222	43.301	-0.000	-0.00889	5.61	ug/L
[	U	238	872.839	5.698	0.005	0.44438	6.73	ug/L
[	Na	23	2286850.714	1.965	15.938	1.18318	6.19	mg/L
	Mg	24	2412820.420	9.044	16.918	1.99506	4.16	mg/L
	K	39	1504115.201	4.913	4.662	0.20228	26.52	mg/L
	Ca	44	2643256.752	4.132	18.449	25.43293	6.14	mg/L
	Fe	54	31338.771	5.947	0.004	0.00241	248.94	mg/L
>	Sc-1	45	142349.646	7.394	142349.646			mg/L
	Kr	83	91.112	16.997	8.333			mg/L

Sample ID: C131107-28

Report Date/Time: Tuesday, December 10, 2013 11:59:43

Page 1

# QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[> Li	6		117.896			
[ Be	9					
[ Al	27					
[> Sc	45		117.156			
[ V	51					
[ Cr	52					
[ Mn	55					
[ Co	59					
[ Ni	60					
[ Cu	65					
[ Zn	66					
[> Ge	72		109.194			
[ As	75					
[ Se	82					
[ Y	89					
[ Mo	98					
[ Ag	107					
[ Ag	109					
[ Cd	111					
[ Cd	114					
[> In	115		97.750			
[ Sb	121					
[ Ba	135					
[> Tb	159		80.126			
[ Ho	165					
[ Tl	205					
[ Pb	208					
[ Bi	209					
[ Th	232					
[ U	238					
[ Na	23					
[ Mg	24					
[ K	39					
[ Ca	44					
[ Fe	54					
[> Sc-1	45					
[ Kr	83					

## Method 200.8 - Summary Report

**Sample ID: C131107-30** *Q/cx lv12/10/13*

Sample Date/Time: Tuesday, December 10, 2013 12:01:10

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312040

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-30.46496

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
[>	Li	6	8878.530	3.878	8878.530			ug/L
[	Be	9	5.000	88.192	-0.000	-0.06063	115.55	ug/L
[	Al	27	5334.500	3.608	0.020	1.39118	2.37	ug/L
[>	Sc	45	133713.826	3.009	133713.826			ug/L
[	V	51	-352.152	342.228	0.020	0.72321	44.80	ug/L
[	Cr	52	10283.495	8.642	0.025	1.00886	17.95	ug/L
[	Mn	55	621469.199	5.145	4.634	122.65635	5.31	ug/L
[	Co	59	584.472	3.243	0.004	0.11345	0.36	ug/L
[	Ni	60	-233.826	21.935	-0.002	-0.30883	14.66	ug/L
[	Cu	65	367.789	7.256	0.001	0.12164	13.85	ug/L
[	Zn	66	2783.953	2.550	0.025	4.15350	5.99	ug/L
[>	Ge	72	89155.268	3.625	89155.268			ug/L
[	As	75	-232.576	58.561	0.001	0.08073	197.40	ug/L
[	Se	82	15.667	63.830	-0.000	-0.20914	65.58	ug/L
[	Y	89	301.674	7.054	272.785			ug/L
[	Mo	98	1763.971	2.939	0.006	0.78553	4.73	ug/L
[	Ag	107	5.000	33.333	-0.000	-0.00609	9.39	ug/L
[	Ag	109	5.556	96.437	-0.000	-0.00461	38.83	ug/L
[	Cd	111	40.003	15.278	0.000	0.04399	21.34	ug/L
[	Cd	114	82.716	13.342	0.000	0.02196	28.69	ug/L
[>	In	115	281511.273	1.448	281511.273			ug/L
[	Sb	121	50.556	40.955	-0.000	-0.00793	119.90	ug/L
[	Ba	135	904.510	2.334	0.005	2.02433	1.56	ug/L
[>	Tb	159	192286.662	1.052	192286.662			ug/L
[	Ho	165	12.222	7.873	0.000			ug/L
[	Tl	205	20.000	30.046	-0.000	-0.04595	8.17	ug/L
[	Pb	208	383.338	7.184	0.001	0.11209	13.07	ug/L
[	Bi	209	8.333	34.641	-0.000			ug/L
[	Th	232	10.000	0.000	-0.000	-0.00512	1.02	ug/L
[	U	238	171.113	5.707	0.001	0.07938	6.08	ug/L
[	Na	23	2190425.483	6.112	16.237	1.20538	9.33	mg/L
[	Mg	24	2326187.614	5.996	17.392	2.05100	8.21	mg/L
[	K	39	2629309.334	6.471	13.688	0.59398	5.43	mg/L
[	Ca	44	2426027.016	7.678	17.972	24.77537	6.60	mg/L
[	Fe	54	63371.653	4.555	0.258	0.13892	6.43	mg/L
[>	Sc-1	45	133713.826	3.009	133713.826			mg/L
[	Kr	83	100.556	4.785	17.778			mg/L

## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		116.013			
[	Be	9					
[	Al	27					
[>	Sc	45		110.049			
	V	51					
	Cr	52					
	Mn	55					
	Co	59					
	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		110.268			
	As	75					
[	Se	82					
	Y	89					
[	Mo	98					
	Ag	107					
	Ag	109					
	Cd	111					
	Cd	114					
[>	In	115		100.917			
[	Sb	121					
[	Ba	135					
[>	Tb	159		85.305			
	Ho	165					
	Tl	205					
	Pb	208					
	Bi	209					
	Th	232					
[	U	238					
[	Na	23					
	Mg	24					
	K	39					
	Ca	44					
	Fe	54					
[>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: Blank

Sample Date/Time: Tuesday, December 10, 2013 12:04:14

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312040

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\Blank.46497

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8171.467	6.977	8171.467			ug/L
L	Be	9	1.667	173.205	-0.001	-0.10985	46.31	ug/L
[	Al	27	1728.018	8.523	-0.007	-0.50876	17.02	ug/L
>	Sc	45	132705.380	1.525	132705.380			ug/L
	V	51	-1328.591	62.609	0.013	0.45177	50.35	ug/L
	Cr	52	7493.402	8.979	0.004	0.17612	138.50	ug/L
	Mn	55	2341.385	27.122	0.003	0.06672	183.84	ug/L
	Co	59	30.556	11.355	-0.000	-0.00344	21.32	ug/L
	Ni	60	46.183	2.330	-0.000	-0.03393	4.25	ug/L
L	Cu	65	67.778	20.028	-0.001	-0.13029	9.52	ug/L
[	Zn	66	215.559	10.723	-0.004	-0.70346	6.69	ug/L
>	Ge	72	91603.873	2.307	91603.873			ug/L
	As	75	-127.806	45.113	0.002	0.21497	31.70	ug/L
L	Se	82	28.334	17.569	-0.000	-0.05563	102.96	ug/L
	Y	89	28.889	14.519	0.000			ug/L
[	Mo	98	70.259	3.117	-0.000	-0.06178	0.37	ug/L
	Ag	107	7.222	26.647	-0.000	-0.00537	12.75	ug/L
	Ag	109	9.444	20.377	-0.000	-0.00332	16.38	ug/L
	Cd	111	7.506	43.601	-0.000	-0.00187	257.82	ug/L
	Cd	114	13.694	141.166	-0.000	-0.02157	54.46	ug/L
>	In	115	284431.486	3.062	284431.486			ug/L
L	Sb	121	42.778	25.350	-0.000	-0.01160	44.99	ug/L
[	Ba	135	3.333	86.603	-0.000	-0.03050	20.80	ug/L
>	Tb	159	198258.660	1.513	198258.660			ug/L
	Ho	165	7.778	32.733	-0.000			ug/L
	Tl	205	5.556	75.498	-0.000	-0.05508	4.72	ug/L
	Pb	208	135.001	3.704	-0.000	-0.00477	28.36	ug/L
	Bi	209	7.778	32.733	-0.000			ug/L
	Th	232	2.222	43.301	-0.000	-0.00899	5.16	ug/L
L	U	238	0.556	173.205	-0.000	-0.00271	16.31	ug/L
[	Na	23	5244.992	9.872	-0.135	-0.01006	3.05	mg/L
	Mg	24	3767.802	1.085	0.001	0.00008	61.83	mg/L
	K	39	725185.369	2.242	-0.496	-0.02152	41.43	mg/L
	Ca	44	19193.900	3.780	-0.022	-0.03080	32.77	mg/L
	Fe	54	32296.670	13.919	0.028	0.01490	134.67	mg/L
>	Sc-1	45	132705.380	1.525	132705.380			mg/L
	Kr	83	77.778	12.917	-5.000			mg/L

Sample ID: Blank

Report Date/Time: Tuesday, December 10, 2013 12:05:50

Page 1

# QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		106.774			
[	Be	9					
[	Al	27					
[>	Sc	45		109.219			
	V	51					
	Cr	52					
	Mn	55					
	Co	59					
	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		113.297			
	As	75					
[	Se	82					
	Y	89					
[	Mo	98					
	Ag	107					
	Ag	109					
	Cd	111					
	Cd	114					
[>	In	115		101.964			
[	Sb	121					
[	Ba	135					
[>	Tb	159		87.955			
	Ho	165					
	Tl	205					
	Pb	208					
	Bi	209					
	Th	232					
[	U	238					
[	Na	23					
	Mg	24					
	K	39					
	Ca	44					
	Fe	54					
[>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: SEQ-CCV

Sample Date/Time: Tuesday, December 10, 2013 12:07:16

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID:

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\SEQ-CCV.46498

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
[>	Li	6	8432.367	6.363	8432.367			ug/L
[	Be	9	3101.881	1.854	0.368	50.37527	6.06	ug/L
[	Al	27	456859.101	2.033	3.426	242.33958	7.28	ug/L
[>	Sc	45	133134.983	9.043	133134.983			ug/L
	V	51	173118.732	1.032	1.329	47.55743	8.11	ug/L
	Cr	52	160126.844	3.990	1.157	47.48931	10.78	ug/L
	Mn	55	243595.951	3.511	1.821	48.18860	5.60	ug/L
	Co	59	222555.151	3.195	1.682	47.48314	10.81	ug/L
	Ni	60	48255.400	4.008	0.365	47.93626	12.76	ug/L
[	Cu	65	55733.007	1.940	0.419	47.21999	9.87	ug/L
[	Zn	66	28819.692	3.853	0.304	51.02638	7.03	ug/L
[>	Ge	72	93307.081	9.475	93307.081			ug/L
	As	75	40872.463	2.166	0.443	50.20840	7.60	ug/L
[	Se	82	4059.475	4.769	0.043	51.07051	10.17	ug/L
	Y	89	42.778	4.499	13.889			ug/L
[	Mo	98	101393.034	1.976	0.360	50.61217	3.31	ug/L
	Ag	107	154984.248	2.236	0.551	50.92586	0.80	ug/L
	Ag	109	146627.436	1.301	0.521	49.94895	2.58	ug/L
	Cd	111	36029.434	4.490	0.128	50.71975	5.76	ug/L
	Cd	114	78108.708	1.599	0.277	48.97180	2.79	ug/L
[>	In	115	281453.808	1.447	281453.808			ug/L
[	Sb	121	110922.510	1.755	0.394	49.73710	3.09	ug/L
[	Ba	135	24911.226	1.941	0.123	53.81129	1.87	ug/L
[>	Tb	159	202887.160	3.283	202887.160			ug/L
	Ho	165	5.556	17.321	-0.000			ug/L
	Tl	205	92226.247	2.231	0.454	54.73911	4.49	ug/L
	Pb	208	122699.632	1.974	0.604	53.74584	2.45	ug/L
	Bi	209	18.333	47.238	0.000			ug/L
	Th	232	118504.038	0.536	0.584	55.42501	3.33	ug/L
[	U	238	118484.431	1.758	0.584	54.07001	3.58	ug/L
[	Na	23	8600684.895	8.665	64.680	4.80168	10.68	mg/L
	Mg	24	5695034.412	2.784	42.911	5.06043	6.29	mg/L
	K	39	15365306.843	2.611	109.980	4.77235	8.43	mg/L
	Ca	44	466733.794	13.841	3.332	4.59299	6.83	mg/L
	Fe	54	1258560.225	12.247	9.219	4.96557	3.30	mg/L
[>	Sc-1	45	133134.983	9.043	133134.983			mg/L
	Kr	83	85.001	7.070	2.222			mg/L

Sample ID: SEQ-CCV

Report Date/Time: Tuesday, December 10, 2013 12:08:52

Page 1



## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
>	Li	6		110.184			
[	Be	9	100.751				
[	Al	27	96.936				
>	Sc	45		109.572			
	V	51	95.115				
	Cr	52	94.979				
	Mn	55	96.377				
	Co	59	94.966				
	Ni	60	95.873				
[	Cu	65	94.440				
[	Zn	66	102.053				
>	Ge	72		115.403			
	As	75	100.417				
[	Se	82	102.141				
	Y	89					
[	Mo	98	101.224				
	Ag	107	101.852				
	Ag	109	99.898				
	Cd	111	101.439				
	Cd	114					
>	In	115		100.896			
[	Sb	121	99.474				
[	Ba	135	107.623				
>	Tb	159		90.008			
	Ho	165					
	Tl	205	109.478				
	Pb	208	107.492				
	Bi	209					
	Th	232	110.850				
[	U	238	108.140				
[	Na	23	96.034				
	Mg	24	101.209				
	K	39	95.447				
	Ca	44	91.860				
	Fe	54	99.311				
>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: SEQ-CCB

Sample Date/Time: Tuesday, December 10, 2013 12:10:33

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID:

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\SEQ-CCB.46499

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8102.476	3.796	8102.476			ug/L
[	Be	9	5.556	17.321	-0.000	-0.04560	27.38	ug/L
[	Al	27	2680.019	1.829	0.001	0.05039	60.02	ug/L
>	Sc	45	128024.131	1.079	128024.131			ug/L
[	V	51	-1131.096	45.101	0.014	0.49589	28.16	ug/L
[	Cr	52	6681.932	10.910	-0.000	-0.00188	12158.13	ug/L
[	Mn	55	2062.203	31.383	0.001	0.02662	493.78	ug/L
[	Co	59	68.334	7.317	0.000	0.00512	19.67	ug/L
[	Ni	60	73.145	6.679	-0.000	-0.00454	128.34	ug/L
[	Cu	65	251.116	10.627	0.000	0.03301	73.14	ug/L
[	Zn	66	522.244	9.410	-0.001	-0.14572	70.56	ug/L
>	Ge	72	92127.491	1.696	92127.491			ug/L
[	As	75	-115.359	196.514	0.002	0.23272	119.59	ug/L
[	Se	82	20.889	48.934	-0.000	-0.15261	83.50	ug/L
[	Y	89	31.111	25.317	2.222			ug/L
[	Mo	98	378.109	17.590	0.001	0.08799	37.49	ug/L
[	Ag	107	42.778	16.221	0.000	0.00597	35.42	ug/L
[	Ag	109	48.334	24.866	0.000	0.00960	43.09	ug/L
[	Cd	111	13.758	31.682	0.000	0.00648	89.13	ug/L
[	Cd	114	42.245	26.526	-0.000	-0.00394	180.92	ug/L
>	In	115	288413.876	1.270	288413.876			ug/L
[	Sb	121	295.563	8.779	0.001	0.09870	11.50	ug/L
[	Ba	135	26.111	26.575	0.000	0.01781	78.75	ug/L
>	Tb	159	205184.665	3.141	205184.665			ug/L
[	Ho	165	7.778	44.607	-0.000			ug/L
[	Tl	205	110.557	13.171	0.000	0.00642	131.59	ug/L
[	Pb	208	165.001	10.497	0.000	0.00612	97.31	ug/L
[	Bi	209	13.333	33.072	0.000			ug/L
[	Th	232	47.222	5.391	0.000	0.01178	10.30	ug/L
[	U	238	23.333	56.695	0.000	0.00755	79.31	ug/L
[	Na	23	28175.468	10.179	0.045	0.00335	51.22	mg/L
[	Mg	24	4640.057	4.265	0.009	0.00101	22.17	mg/L
[	K	39	773294.860	2.839	0.077	0.00336	188.51	mg/L
[	Ca	44	18858.981	2.886	-0.020	-0.02717	25.65	mg/L
[	Fe	54	30127.288	13.461	0.019	0.01043	166.05	mg/L
>	Sc-1	45	128024.131	1.079	128024.131			mg/L
[	Kr	83	110.001	16.035	27.223			mg/L

Sample ID: SEQ-CCB

Report Date/Time: Tuesday, December 10, 2013 12:12:08

Page 1

# *QC Calculated Values*

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		105.873			
[	Be	9					
[	Al	27					
[>	Sc	45		105.366			
[	V	51					
[	Cr	52					
[	Mn	55					
[	Co	59					
[	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		113.944			
[	As	75					
[	Se	82					
[	Y	89					
[	Mo	98					
[	Ag	107					
[	Ag	109					
[	Cd	111					
[	Cd	114					
[>	In	115		103.391			
[	Sb	121					
[	Ba	135					
[>	Tb	159		91.027			
[	Ho	165					
[	Tl	205					
[	Pb	208					
[	Bi	209					
[	Th	232					
[	U	238					
[	Na	23					
[	Mg	24					
[	K	39					
[	Ca	44					
[	Fe	54					
[>	Sc-1	45					
[	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: 1312035-BLK2 @5X

Sample Date/Time: Tuesday, December 10, 2013 12:27:17

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312035

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\1312035-BLK2 @5X.46500

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8475.190	2.709	8475.190			ug/L
[	Be	9	3.889	89.214	-0.001	-0.07535	76.01	ug/L
[	Al	27	1582.425	12.838	-0.008	-0.58912	17.98	ug/L
>	Sc	45	133029.862	1.174	133029.862			ug/L
	V	51	-7390.318	38.329	-0.033	-1.17261	63.31	ug/L
	Cr	52	8750.053	10.257	0.014	0.55467	46.48	ug/L
	Mn	55	1020.310	12.076	-0.007	-0.19631	12.89	ug/L
	Co	59	28.889	17.625	-0.000	-0.00381	28.14	ug/L
	Ni	60	19.044	28.663	-0.000	-0.06083	9.28	ug/L
[	Cu	65	68.334	7.317	-0.001	-0.13008	3.13	ug/L
[	Zn	66	346.676	2.404	-0.003	-0.46534	4.80	ug/L
>	Ge	72	91928.631	2.498	91928.631			ug/L
	As	75	-446.801	67.356	-0.002	-0.18179	209.54	ug/L
[	Se	82	32.667	31.960	0.000	0.00047	29968.48	ug/L
	Y	89	25.000	24.037	-3.889			ug/L
[	Mo	98	49.269	18.835	-0.001	-0.07225	6.39	ug/L
	Ag	107	3.333	100.000	-0.000	-0.00667	15.93	ug/L
	Ag	109	8.333	20.000	-0.000	-0.00370	14.04	ug/L
	Cd	111	4.607	52.156	-0.000	-0.00596	57.34	ug/L
	Cd	114	16.927	43.010	-0.000	-0.01944	22.25	ug/L
>	In	115	285506.250	1.512	285506.250			ug/L
[	Sb	121	59.445	36.160	-0.000	-0.00438	219.60	ug/L
[	Ba	135	8.889	10.825	-0.000	-0.01797	12.02	ug/L
>	Tb	159	196345.376	0.561	196345.376			ug/L
	Ho	165	5.000	33.333	-0.000			ug/L
	Tl	205	5.556	45.826	-0.000	-0.05507	2.84	ug/L
	Pb	208	91.111	10.075	-0.000	-0.02406	16.90	ug/L
	Bi	209	8.889	43.301	-0.000			ug/L
	Th	232	3.333	100.000	-0.000	-0.00844	19.09	ug/L
[	U	238	1.111	86.603	-0.000	-0.00244	18.64	ug/L
[	Na	23	8707.741	5.509	-0.110	-0.00813	3.97	mg/L
	Mg	24	2158.152	8.192	-0.011	-0.00135	12.99	mg/L
	K	39	741763.635	1.071	-0.387	-0.01677	7.91	mg/L
	Ca	44	19187.204	3.194	-0.023	-0.03144	19.04	mg/L
	Fe	54	33809.239	7.545	0.038	0.02048	44.39	mg/L
>	Sc-1	45	133029.862	1.174	133029.862			mg/L
	Kr	83	85.556	12.971	2.778			mg/L

Sample ID: 1312035-BLK2 @5X

Report Date/Time: Tuesday, December 10, 2013 12:28:52

Page 1

# QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		110.743			
[	Be	9					
[	Al	27					
[>	Sc	45		109.486			
[	V	51					
[	Cr	52					
[	Mn	55					
[	Co	59					
[	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		113.698			
[	As	75					
[	Se	82					
[	Y	89					
[	Mo	98					
[	Ag	107					
[	Ag	109					
[	Cd	111					
[	Cd	114					
[>	In	115		102.349			
[	Sb	121					
[	Ba	135					
[>	Tb	159		87.106			
[	Ho	165					
[	Tl	205					
[	Pb	208					
[	Bi	209					
[	Th	232					
[	U	238					
[	Na	23					
[	Mg	24					
[	K	39					
[	Ca	44					
[	Fe	54					
[>	Sc-1	45					
[	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: C131107-02 @10X

Sample Date/Time: Tuesday, December 10, 2013 12:30:19

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312035

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-02 @10X.46501

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8904.673	1.209	8904.673			ug/L
L	Be	9	21.667	33.530	0.001	0.19330	56.22	ug/L
[	Al	27	3708298.561	4.911	25.213	1783.30815	7.55	ug/L
>	Sc	45	147175.654	3.412	147175.654			ug/L
	V	51	7430.721	18.987	0.073	2.61285	11.32	ug/L
	Cr	52	17706.789	6.729	0.068	2.80467	17.92	ug/L
	Mn	55	1633296.390	2.734	11.084	293.35989	0.70	ug/L
	Co	59	7660.810	4.568	0.052	1.45989	4.21	ug/L
	Ni	60	2074.202	14.249	0.014	1.78037	18.58	ug/L
L	Cu	65	6475.049	11.609	0.042	4.78263	15.57	ug/L
[	Zn	66	20903.886	6.479	0.227	38.10262	6.11	ug/L
>	Ge	72	89602.813	1.474	89602.813			ug/L
	As	75	588.933	15.853	0.010	1.11549	9.73	ug/L
L	Se	82	39.000	47.334	0.000	0.09573	259.37	ug/L
	Y	89	34586.040	2.894	34557.151			ug/L
[	Mo	98	1991.939	1.171	0.007	0.93227	1.87	ug/L
	Ag	107	502.242	4.982	0.002	0.16274	4.54	ug/L
	Ag	109	446.127	8.652	0.002	0.15044	8.59	ug/L
	Cd	111	170.813	27.227	0.001	0.23522	27.20	ug/L
	Cd	114	356.158	2.755	0.001	0.20084	1.12	ug/L
>	In	115	272497.271	1.867	272497.271			ug/L
L	Sb	121	224.449	14.596	0.001	0.07318	18.84	ug/L
[	Ba	135	13684.413	1.881	0.074	32.51649	1.42	ug/L
>	Tb	159	184284.147	0.760	184284.147			ug/L
	Ho	165	631.143	3.344	0.003			ug/L
	Tl	205	86.667	11.698	-0.000	-0.00182	372.69	ug/L
	Pb	208	38579.665	2.167	0.209	18.55375	1.91	ug/L
	Bi	209	165.002	10.497	0.001			ug/L
	Th	232	2153.704	1.015	0.012	1.09843	1.73	ug/L
L	U	238	1122.323	5.172	0.006	0.56045	4.61	ug/L
[	Na	23	2352555.023	4.963	15.838	1.17578	8.21	mg/L
	Mg	24	3555768.479	1.984	24.157	2.84880	4.78	mg/L
	K	39	3819991.385	5.778	20.044	0.86978	11.83	mg/L
	Ca	44	2879725.956	5.882	19.422	26.77408	7.54	mg/L
	Fe	54	876446.911	5.308	5.747	3.09558	7.80	mg/L
>	Sc-1	45	147175.654	3.412	147175.654			mg/L
	Kr	83	92.223	9.954	9.445			mg/L

# QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		116.355			
[	Be	9					
[	Al	27					
[>	Sc	45		121.128			
[	V	51					
[	Cr	52					
[	Mn	55					
[	Co	59					
[	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		110.822			
[	As	75					
[	Se	82					
[	Y	89					
[	Mo	98					
[	Ag	107					
[	Ag	109					
[	Cd	111					
[	Cd	114					
[>	In	115		97.686			
[	Sb	121					
[	Ba	135					
[>	Tb	159		81.755			
[	Ho	165					
[	Tl	205					
[	Pb	208					
[	Bi	209					
[	Th	232					
[	U	238					
[	Na	23					
[	Mg	24					
[	K	39					
[	Ca	44					
[	Fe	54					
[>	Sc-1	45					
[	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: 1312035-DUP2 @10X

Sample Date/Time: Tuesday, December 10, 2013 12:33:21

Sample Type: Duplicate of 2

Sample Description:

Number of Replicates: 3

Batch ID: 1312035

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\1312035-DUP2 @10X.46502

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8737.216	2.235	8737.216			ug/L
[	Be	9	13.889	54.111	0.001	0.08037	153.02	ug/L
[	Al	27	3583741.297	6.824	23.704	1676.62093	8.14	ug/L
>	Sc	45	151174.828	2.243	151174.828			ug/L
	V	51	8326.742	18.576	0.078	2.78567	14.40	ug/L
	Cr	52	16923.439	1.156	0.060	2.45256	6.21	ug/L
	Mn	55	1664499.489	6.441	10.992	290.92136	5.24	ug/L
	Co	59	7679.176	7.382	0.050	1.42449	7.83	ug/L
	Ni	60	1958.780	11.102	0.012	1.62695	13.80	ug/L
[	Cu	65	6248.123	2.887	0.040	4.46906	5.12	ug/L
[	Zn	66	19876.599	4.516	0.216	36.29205	3.59	ug/L
>	Ge	72	89478.835	7.443	89478.835			ug/L
	As	75	735.924	2.458	0.012	1.30670	5.21	ug/L
[	Se	82	25.334	91.247	-0.000	-0.08431	360.49	ug/L
	Y	89	33202.431	2.193	33173.542			ug/L
[	Mo	98	1956.311	4.557	0.007	0.93934	8.47	ug/L
	Ag	107	465.017	11.817	0.002	0.15359	9.51	ug/L
	Ag	109	423.903	8.176	0.002	0.14607	6.01	ug/L
	Cd	111	177.161	4.450	0.001	0.25159	7.25	ug/L
	Cd	114	341.617	7.298	0.001	0.19686	9.09	ug/L
>	In	115	266167.163	3.069	266167.163			ug/L
[	Sb	121	190.558	14.003	0.000	0.05970	20.21	ug/L
[	Ba	135	13445.563	2.171	0.075	32.91577	2.64	ug/L
>	Tb	159	178895.936	0.760	178895.936			ug/L
	Ho	165	616.697	3.545	0.003			ug/L
	Tl	205	103.890	10.314	0.000	0.01146	62.65	ug/L
	Pb	208	38161.673	0.206	0.213	18.90798	0.97	ug/L
	Bi	209	192.781	12.114	0.001			ug/L
	Th	232	2229.287	2.027	0.012	1.17195	2.79	ug/L
[	U	238	1061.757	6.056	0.006	0.54620	6.05	ug/L
[	Na	23	2204519.282	4.659	14.402	1.06919	2.44	mg/L
	Mg	24	3459367.320	8.133	22.845	2.69407	6.85	mg/L
	K	39	3809206.374	2.407	19.251	0.83536	5.90	mg/L
	Ca	44	2908427.275	1.823	19.073	26.29266	0.42	mg/L
	Fe	54	841746.395	7.297	5.348	2.88071	5.48	mg/L
>	Sc-1	45	151174.828	2.243	151174.828			mg/L
	Kr	83	104.445	23.253	21.667			mg/L



# QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		114.167			
[	Be	9					82.535
[	Al	27					6.167
[>	Sc	45		124.419			
[	V	51					6.403
[	Cr	52					13.395
[	Mn	55					0.835
[	Co	59					2.454
[	Ni	60					9.005
[	Cu	65					6.779
[	Zn	66					4.867
[>	Ge	72		110.668			
[	As	75					15.788
[	Se	82					3153.552
[	Y	89					
[	Mo	98					0.755
[	Ag	107					5.786
[	Ag	109					2.950
[	Cd	111					6.728
[	Cd	114					2.001
[>	In	115		95.416			
[	Sb	121					20.289
[	Ba	135					1.220
[>	Tb	159		79.365			
[	Ho	165					
[	Tl	205					275.656
[	Pb	208					1.891
[	Bi	209					
[	Th	232					6.477
[	U	238					2.577
[	Na	23					9.496
[	Mg	24					5.583
[	K	39					4.037
[	Ca	44					1.814
[	Fe	54					7.191
[>	Sc-1	45					
[	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: SEQ-SRD1 @50X

Sample Date/Time: Tuesday, December 10, 2013 12:36:24

Sample Type: Dilution - DF:5 of 2

Sample Description:

Number of Replicates: 3

Batch ID: 1312035

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\SEQ-SRD1 @50X.46503

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8644.308	1.125	8644.308			ug/L
[	Be	9	12.222	55.111	0.000	0.05508	197.70	ug/L
[	Al	27	732628.896	4.449	5.257	371.81838	2.89	ug/L
>	Sc	45	138809.007	2.481	138809.007			ug/L
[	V	51	53.646	293.858	0.023	0.82427	4.88	ug/L
[	Cr	52	8629.303	6.546	0.010	0.41117	55.17	ug/L
[	Mn	55	322290.478	2.392	2.307	61.05680	1.53	ug/L
[	Co	59	1481.842	3.083	0.010	0.29140	1.11	ug/L
[	Ni	60	409.809	19.828	0.002	0.30866	24.97	ug/L
[	Cu	65	1321.251	6.354	0.008	0.88541	10.81	ug/L
[	Zn	66	4221.427	4.308	0.041	6.89327	5.95	ug/L
>	Ge	72	88793.033	1.383	88793.033			ug/L
[	As	75	-152.883	119.985	0.002	0.17515	135.68	ug/L
[	Se	82	24.445	57.311	-0.000	-0.09392	201.11	ug/L
[	Y	89	6932.176	1.701	6903.287			ug/L
[	Mo	98	415.151	7.408	0.001	0.11577	14.29	ug/L
[	Ag	107	89.445	19.924	0.000	0.02229	25.56	ug/L
[	Ag	109	85.001	9.804	0.000	0.02315	14.60	ug/L
[	Cd	111	39.853	13.345	0.000	0.04498	16.82	ug/L
[	Cd	114	68.257	34.672	0.000	0.01409	113.99	ug/L
>	In	115	275254.238	1.688	275254.238			ug/L
[	Sb	121	60.000	15.466	-0.000	-0.00319	121.74	ug/L
[	Ba	135	2802.851	1.522	0.014	6.32973	2.80	ug/L
>	Tb	159	193044.644	2.189	193044.644			ug/L
[	Ho	165	127.224	10.670	0.001			ug/L
[	Tl	205	28.889	26.015	-0.000	-0.04052	10.58	ug/L
[	Pb	208	8125.396	1.270	0.041	3.67873	1.00	ug/L
[	Bi	209	30.556	3.149	0.000			ug/L
[	Th	232	430.570	2.635	0.002	0.20149	1.79	ug/L
[	U	238	232.782	3.307	0.001	0.10865	4.12	ug/L
[	Na	23	467031.206	4.583	3.191	0.23689	5.56	mg/L
[	Mg	24	715463.450	6.148	5.127	0.60458	5.63	mg/L
[	K	39	1326585.724	1.338	3.597	0.15607	4.17	mg/L
[	Ca	44	549830.497	7.962	3.799	5.23683	10.14	mg/L
[	Fe	54	196214.087	6.945	1.199	0.64557	9.41	mg/L
>	Sc-1	45	138809.007	2.481	138809.007			mg/L
[	Kr	83	88.890	23.816	6.111			mg/L

Sample ID: SEQ-SRD1 @50X

Report Date/Time: Tuesday, December 10, 2013 12:37:59

Page 1

## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		112.953			
[	Be	9				42.466	
[	Al	27				4.250	
[>	Sc	45		114.242			
	V	51				57.734	
	Cr	52				26.699	
	Mn	55				4.065	
	Co	59				0.198	
	Ni	60				13.317	
[	Cu	65				7.434	
[	Zn	66				9.543	
[>	Ge	72		109.820			
	As	75				21.493	
[	Se	82				590.552	
	Y	89					
[	Mo	98				37.910	
	Ag	107				31.512	
	Ag	109				23.066	
	Cd	111				4.395	
	Cd	114				64.917	
[>	In	115		98.674			
[	Sb	121				121.793	
[	Ba	135				2.669	
[>	Tb	159		85.641			
	Ho	165					
	Tl	205				-11011.937	
	Pb	208				0.863	
	Bi	209					
	Th	232				8.283	
[	U	238				3.071	
[	Na	23				0.738	
	Mg	24				6.112	
	K	39				10.285	
	Ca	44				2.203	
	Fe	54				4.272	
[>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

**Sample ID: 1312035-SRM2 @20X**

Sample Date/Time: Tuesday, December 10, 2013 12:39:26

Sample Type: Spike - 1 of 1

Sample Description:

Number of Replicates: 3

Batch ID: 1312035

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\1312035-SRM2 @20X.46504

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	9638.541	2.703	9638.541			ug/L
[	Be	9	2731.153	3.362	0.282	38.67216	0.72	ug/L
[	Al	27	91105.222	4.837	0.643	45.46071	7.69	ug/L
>	Sc	45	137957.234	9.306	137957.234			ug/L
	V	51	181350.930	7.118	1.339	47.89622	2.06	ug/L
	Cr	52	166359.450	5.268	1.162	47.66895	12.47	ug/L
	Mn	55	254305.326	10.131	1.827	48.36417	1.06	ug/L
	Co	59	225887.716	8.515	1.639	46.26639	5.03	ug/L
	Ni	60	48792.982	1.428	0.355	46.70918	10.18	ug/L
[	Cu	65	57472.989	5.379	0.417	47.00777	11.42	ug/L
[	Zn	66	28862.163	5.196	0.316	53.05767	5.23	ug/L
>	Ge	72	89683.990	6.517	89683.990			ug/L
	As	75	81347.872	1.614	0.912	103.28665	4.91	ug/L
[	Se	82	3888.927	4.789	0.043	50.84396	10.93	ug/L
	Y	89	41.111	2.341	12.222			ug/L
[	Mo	98	96589.905	1.809	0.344	48.34080	2.22	ug/L
	Ag	107	37545.235	1.786	0.134	12.36893	2.09	ug/L
	Ag	109	36096.175	1.608	0.129	12.32683	2.72	ug/L
	Cd	111	34600.084	2.780	0.123	48.81575	1.15	ug/L
	Cd	114	78104.451	3.527	0.278	49.08776	1.91	ug/L
>	In	115	280649.228	1.653	280649.228			ug/L
[	Sb	121	225120.228	1.253	0.802	101.25440	2.14	ug/L
[	Ba	135	23588.354	3.487	0.121	53.18608	2.34	ug/L
>	Tb	159	194266.563	1.193	194266.563			ug/L
	Ho	165	3.889	49.487	-0.000			ug/L
	Tl	205	435769.887	2.591	2.243	270.19622	3.80	ug/L
	Pb	208	232491.229	1.088	1.196	106.38707	1.83	ug/L
	Bi	209	7.778	81.127	-0.000			ug/L
	Th	232	10902.835	0.981	0.056	5.31360	2.17	ug/L
[	U	238	11092.059	1.915	0.057	5.27985	0.75	ug/L
[	Na	23	86452.918	2.307	0.455	0.03381	13.89	mg/L
	Mg	24	55064.265	8.288	0.372	0.04384	2.25	mg/L
	K	39	1519301.841	1.442	5.116	0.22199	20.88	mg/L
	Ca	44	25206.286	1.131	0.017	0.02283	86.54	mg/L
	Fe	54	44354.984	10.496	0.105	0.05676	11.07	mg/L
>	Sc-1	45	137957.234	9.306	137957.234			mg/L
	Kr	83	99.445	16.278	16.667			mg/L

Sample ID: 1312035-SRM2 @20X

Report Date/Time: Tuesday, December 10, 2013 12:41:02

Page 1

## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		125.944			
[	Be	9			77.495		
[	Al	27			92.100		
[>	Sc	45		113.541			
	V	51			98.138		
	Cr	52			94.229		
	Mn	55			97.121		
	Co	59			92.540		
	Ni	60			93.540		
[	Cu	65			94.276		
[	Zn	66					
[>	Ge	72		110.922			
	As	75			103.468		
[	Se	82			101.687		
	Y	89					
[	Mo	98			96.826		
	Ag	107			99.005		
	Ag	109			98.644		
	Cd	111			97.643		
	Cd	114					
[>	In	115		100.608			
[	Sb	121			101.259		
[	Ba	135			106.408		
[>	Tb	159		86.184			
	Ho	165					
	Tl	205			108.101		
	Pb	208			106.411		
	Bi	209					
	Th	232					
[	U	238					
[	Na	23			83.886		
	Mg	24			90.376		
	K	39			95.503		
	Ca	44			108.532		
	Fe	54			72.553		
[>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: 1312035-MS2 @10X

Sample Date/Time: Tuesday, December 10, 2013 12:42:29

Sample Type: Spike - 2 of 2

Sample Description:

Number of Replicates: 3

Batch ID: 1312035

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\1312035-MS2 @10X.46505

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	9159.486	1.795	9159.486			ug/L
L	Be	9	1097.319	1.983	0.119	16.27321	1.80	ug/L
[	Al	27	4851649.758	7.901	32.837	2322.58761	5.87	ug/L
>	Sc	45	147739.341	6.837	147739.341			ug/L
	V	51	114816.925	8.235	0.799	28.59490	1.43	ug/L
	Cr	52	138714.796	1.125	0.889	36.48818	6.27	ug/L
	Mn	55	1801433.625	6.973	12.178	322.29896	0.62	ug/L
	Co	59	94725.083	6.698	0.642	18.11447	6.50	ug/L
	Ni	60	47931.378	7.693	0.325	42.69147	10.19	ug/L
L	Cu	65	38081.382	4.618	0.257	28.96145	10.27	ug/L
[	Zn	66	30388.785	4.185	0.341	57.28140	2.28	ug/L
>	Ge	72	87523.571	5.276	87523.571			ug/L
	As	75	59356.591	5.579	0.681	77.15750	1.86	ug/L
L	Se	82	14501.555	1.971	0.166	195.01308	7.01	ug/L
	Y	89	32896.401	3.073	32867.512			ug/L
[	Mo	98	73053.002	2.088	0.276	38.90127	2.26	ug/L
	Ag	107	21042.597	2.186	0.080	7.37552	1.16	ug/L
	Ag	109	19571.751	4.609	0.074	7.11245	5.09	ug/L
	Cd	111	13015.559	3.505	0.049	19.54915	4.30	ug/L
	Cd	114	29001.128	2.250	0.110	19.39093	2.20	ug/L
>	In	115	263618.822	1.133	263618.822			ug/L
L	Sb	121	123855.829	2.858	0.470	59.29049	3.29	ug/L
[	Ba	135	22158.673	2.623	0.124	54.53359	0.25	ug/L
>	Tb	159	178019.738	2.683	178019.738			ug/L
	Ho	165	635.032	2.050	0.004			ug/L
	Tl	205	314312.298	1.506	1.766	212.69705	3.02	ug/L
	Pb	208	246993.402	1.185	1.387	123.37537	2.06	ug/L
	Bi	209	158.335	17.708	0.001			ug/L
	Th	232	22328.205	4.730	0.125	11.89236	5.68	ug/L
L	U	238	21518.699	4.593	0.121	11.17859	2.36	ug/L
[	Na	23	2575083.832	2.086	17.300	1.28429	5.99	mg/L
	Mg	24	3593522.301	9.447	24.268	2.86185	2.55	mg/L
	K	39	7207680.230	7.428	43.007	1.86618	12.71	mg/L
	Ca	44	2822484.870	3.008	19.007	26.20119	8.43	mg/L
	Fe	54	949725.487	6.521	6.226	3.35334	8.16	mg/L
>	Sc-1	45	147739.341	6.837	147739.341			mg/L
	Kr	83	103.334	12.177	20.556			mg/L

# QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[> Li	6		119.685			
[ Be	9			40.200		
[ Al	27			134.820		
[> Sc	45		121.592			
[ V	51			43.303		
[ Cr	52			42.104		
[ Mn	55			72.348		
[ Co	59			33.309		
[ Ni	60			40.911		
[ Cu	65			40.298		
[ Zn	66					
[> Ge	72		108.250			
[ As	75			47.526		
[ Se	82			48.729		
[ Y	89					
[ Mo	98			47.461		
[ Ag	107			48.085		
[ Ag	109			46.413		
[ Cd	111			48.285		
[ Cd	114					
[> In	115		94.503			
[ Sb	121			37.011		
[ Ba	135			55.043		
[> Tb	159		78.976			
[ Ho	165					
[ Tl	205			53.175		
[ Pb	208			52.411		
[ Bi	209					
[ Th	232					
[ U	238					
[ Na	23			18.084		
[ Mg	24			3.262		
[ K	39			49.820		
[ Ca	44			-286.443		
[ Fe	54			42.960		
[> Sc-1	45					
[ Kr	83					

## Method 200.8 - Summary Report

**Sample ID: C131107-05 @5X**

Sample Date/Time: Tuesday, December 10, 2013 12:45:32

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312035

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-05 @5X.46506

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
[>	Li	6	8927.518	9.085	8927.518			ug/L
[	Be	9	4.444	78.063	-0.000	-0.06754	92.37	ug/L
[	Al	27	70658.212	4.347	0.467	33.01912	1.30	ug/L
[>	Sc	45	145074.670	4.209	145074.670			ug/L
	V	51	-5502.838	43.376	-0.016	-0.55727	114.63	ug/L
	Cr	52	8192.611	8.043	0.004	0.17258	70.75	ug/L
	Mn	55	15024.735	4.087	0.089	2.34228	3.01	ug/L
	Co	59	186.114	0.517	0.001	0.02632	5.80	ug/L
	Ni	60	-44.208	127.947	-0.001	-0.12066	44.40	ug/L
[	Cu	65	243.338	5.171	0.000	0.00090	281.18	ug/L
[	Zn	66	512.799	5.081	-0.001	-0.11099	77.14	ug/L
[>	Ge	72	87377.139	3.870	87377.139			ug/L
	As	75	-371.259	6.995	-0.001	-0.11015	48.37	ug/L
[	Se	82	26.778	77.902	-0.000	-0.06519	418.82	ug/L
	Y	89	330.009	21.362	301.120			ug/L
[	Mo	98	792.654	13.156	0.002	0.31780	19.64	ug/L
	Ag	107	25.556	56.980	0.000	0.00105	478.53	ug/L
	Ag	109	20.000	22.048	0.000	0.00062	257.95	ug/L
	Cd	111	8.789	94.969	0.000	0.00039	3031.99	ug/L
	Cd	114	22.018	144.303	-0.000	-0.01572	130.64	ug/L
[>	In	115	269724.882	1.939	269724.882			ug/L
[	Sb	121	127.224	22.168	0.000	0.02905	49.51	ug/L
[	Ba	135	5296.688	1.168	0.029	12.88449	0.82	ug/L
[>	Tb	159	179697.273	0.489	179697.273			ug/L
	Ho	165	12.778	32.825	0.000			ug/L
	Tl	205	929.515	20.448	0.005	0.56488	23.06	ug/L
	Pb	208	243.335	11.684	0.001	0.05508	24.77	ug/L
	Bi	209	8.333	52.915	-0.000			ug/L
	Th	232	26.111	26.575	0.000	0.00374	99.43	ug/L
[	U	238	116.668	17.321	0.001	0.05712	18.30	ug/L
[	Na	23	771310.392	2.975	5.149	0.38223	5.75	mg/L
	Mg	24	1112694.151	6.796	7.652	0.90241	8.20	mg/L
	K	39	1157757.291	4.578	2.027	0.08796	24.50	mg/L
	Ca	44	744111.337	3.178	4.970	6.85084	6.17	mg/L
	Fe	54	43644.462	1.273	0.085	0.04582	11.03	mg/L
[>	Sc-1	45	145074.670	4.209	145074.670			mg/L
	Kr	83	86.667	12.611	3.889			mg/L

Sample ID: C131107-05 @5X

Report Date/Time: Tuesday, December 10, 2013 12:47:08

Page 1



## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		116.654			
[	Be	9					
[	Al	27					
[>	Sc	45		119.399			
[	V	51					
[	Cr	52					
[	Mn	55					
[	Co	59					
[	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		108.069			
[	As	75					
[	Se	82					
[	Y	89					
[	Mo	98					
[	Ag	107					
[	Ag	109					
[	Cd	111					
[	Cd	114					
[>	In	115		96.692			
[	Sb	121					
[	Ba	135					
[>	Tb	159		79.720			
[	Ho	165					
[	Tl	205					
[	Pb	208					
[	Bi	209					
[	Th	232					
[	U	238					
[	Na	23					
[	Mg	24					
[	K	39					
[	Ca	44					
[	Fe	54					
[>	Sc-1	45					
[	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: 1312035-MS4 @5X

Sample Date/Time: Tuesday, December 10, 2013 12:48:35

Sample Type: Spike - 2 of 7

Sample Description:

Number of Replicates: 3

Batch ID: 1312035

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\1312035-MS4 @5X.46507

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
[>	Li	6	9112.756	3.816	9112.756			ug/L
[	Be	9	2146.480	5.244	0.234	32.11572	1.47	ug/L
[	Al	27	801392.147	4.328	5.567	393.76364	9.38	ug/L
[>	Sc	45	143883.680	5.296	143883.680			ug/L
	V	51	210103.021	3.987	1.486	53.17056	7.45	ug/L
	Cr	52	251717.669	7.212	1.705	69.95397	12.71	ug/L
	Mn	55	217177.675	3.742	1.496	39.59050	4.11	ug/L
	Co	59	171429.548	8.275	1.195	33.73813	11.68	ug/L
	Ni	60	93651.850	5.707	0.653	85.81779	11.03	ug/L
[	Cu	65	67581.644	8.069	0.470	52.94649	13.55	ug/L
[	Zn	66	23868.306	3.621	0.254	42.68363	3.56	ug/L
[>	Ge	72	91614.916	0.345	91614.916			ug/L
	As	75	119832.459	3.164	1.311	148.45743	2.91	ug/L
[	Se	82	29146.542	4.372	0.318	373.89323	4.14	ug/L
	Y	89	342.787	1.841	313.898			ug/L
[	Mo	98	147853.604	1.767	0.543	76.46741	3.21	ug/L
	Ag	107	42521.497	3.525	0.156	14.45947	2.01	ug/L
	Ag	109	40391.238	1.915	0.149	14.24354	3.43	ug/L
	Cd	111	25980.473	2.816	0.096	37.85933	3.98	ug/L
	Cd	114	57686.318	2.184	0.212	37.43057	1.05	ug/L
[>	In	115	271830.402	1.648	271830.402			ug/L
[	Sb	121	335908.670	1.620	1.236	156.02556	3.17	ug/L
[	Ba	135	23161.174	1.289	0.126	55.29187	1.31	ug/L
[>	Tb	159	183526.842	0.941	183526.842			ug/L
	Ho	165	10.556	24.119	0.000			ug/L
	Tl	205	646814.299	1.915	3.524	424.40644	1.13	ug/L
	Pb	208	430887.860	2.009	2.347	208.76733	2.41	ug/L
	Bi	209	22.778	21.123	0.000			ug/L
	Th	232	42267.448	0.816	0.230	21.83254	0.19	ug/L
[	U	238	42283.116	1.205	0.230	21.31452	0.27	ug/L
[	Na	23	1756880.662	5.172	12.070	0.89608	9.47	mg/L
	Mg	24	1536500.818	2.753	10.664	1.25754	3.82	mg/L
	K	39	7339417.980	8.186	45.274	1.96455	15.09	mg/L
	Ca	44	700294.510	3.323	4.710	6.49334	7.12	mg/L
	Fe	54	205490.056	1.896	1.216	0.65475	8.28	mg/L
[>	Sc-1	45	143883.680	5.296	143883.680			mg/L
	Kr	83	116.112	14.378	33.334			mg/L

Sample ID: 1312035-MS4 @5X

Report Date/Time: Tuesday, December 10, 2013 12:50:12

Page 1

# QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[> Li	6		119.074			
[ Be	9			80.458		
[ Al	27			90.186		
[> Sc	45		118.418			
[ V	51			89.546		
[ Cr	52			87.227		
[ Mn	55			93.121		
[ Co	59			67.424		
[ Ni	60			85.938		
[ Cu	65			88.243		
[ Zn	66					
[> Ge	72		113.310			
[ As	75			92.855		
[ Se	82			93.490		
[ Y	89					
[ Mo	98			95.187		
[ Ag	107			96.389		
[ Ag	109			94.953		
[ Cd	111			94.647		
[ Cd	114					
[> In	115		97.446			
[ Sb	121			97.498		
[ Ba	135			106.018		
[> Tb	159		81.419			
[ Ho	165					
[ Tl	205			105.960		
[ Pb	208			104.356		
[ Bi	209					
[ Th	232					
[ U	238					
[ Na	23			85.641		
[ Mg	24			88.781		
[ K	39			93.830		
[ Ca	44			-178.751		
[ Fe	54			101.489		
[> Sc-1	45					
[ Kr	83					

## Method 200.8 - Summary Report

### Sample ID: C131107-08 @5X

Sample Date/Time: Tuesday, December 10, 2013 12:51:39

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312035

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-08 @5X.46508

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8789.526	6.316	8789.526			ug/L
[	Be	9	3.333	50.000	-0.001	-0.08647	31.67	ug/L
[	Al	27	60354.736	3.797	0.403	28.47892	3.48	ug/L
>	Sc	45	142808.500	4.421	142808.500			ug/L
	V	51	-7139.255	17.520	-0.028	-0.98723	39.34	ug/L
	Cr	52	8677.706	6.926	0.009	0.35282	54.24	ug/L
	Mn	55	63485.285	4.759	0.430	11.36883	3.12	ug/L
	Co	59	209.448	3.588	0.001	0.03151	6.79	ug/L
	Ni	60	-27.252	161.302	-0.001	-0.10481	37.99	ug/L
[	Cu	65	244.449	8.899	0.000	0.00551	451.98	ug/L
[	Zn	66	867.838	6.632	0.003	0.50911	14.22	ug/L
>	Ge	72	90616.833	2.179	90616.833			ug/L
	As	75	-384.044	54.266	-0.001	-0.10453	237.78	ug/L
[	Se	82	21.667	105.394	-0.000	-0.13769	216.97	ug/L
	Y	89	336.120	4.039	307.231			ug/L
[	Mo	98	1213.218	18.624	0.004	0.51722	24.62	ug/L
	Ag	107	22.222	35.444	-0.000	-0.00033	825.28	ug/L
	Ag	109	25.556	24.691	0.000	0.00226	88.94	ug/L
	Cd	111	20.911	41.935	0.000	0.01715	69.64	ug/L
	Cd	114	31.002	61.070	-0.000	-0.01035	114.38	ug/L
>	In	115	278974.622	2.122	278974.622			ug/L
[	Sb	121	178.336	8.307	0.000	0.05015	16.82	ug/L
[	Ba	135	5622.528	1.002	0.030	13.17166	1.19	ug/L
>	Tb	159	186612.815	0.627	186612.815			ug/L
	Ho	165	17.778	67.821	0.000			ug/L
	Tl	205	1919.193	21.869	0.010	1.18059	23.11	ug/L
	Pb	208	326.114	6.431	0.001	0.09013	11.79	ug/L
	Bi	209	6.111	15.746	-0.000			ug/L
	Th	232	46.667	18.558	0.000	0.01368	33.20	ug/L
[	U	238	141.113	16.717	0.001	0.06701	17.50	ug/L
[	Na	23	914419.658	4.254	6.241	0.46330	7.91	mg/L
	Mg	24	1262645.916	5.004	8.817	1.03976	3.88	mg/L
	K	39	1196909.970	4.169	2.431	0.10548	21.86	mg/L
	Ca	44	822335.148	3.119	5.604	7.72559	7.86	mg/L
	Fe	54	45123.730	3.736	0.100	0.05392	9.36	mg/L
>	Sc-1	45	142808.500	4.421	142808.500			mg/L
	Kr	83	102.779	29.960	20.000			mg/L

Sample ID: C131107-08 @5X

Report Date/Time: Tuesday, December 10, 2013 12:53:15

Page 1

# QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		114.850			
[	Be	9					
[	Al	27					
[>	Sc	45		117.534			
[	V	51					
[	Cr	52					
[	Mn	55					
[	Co	59					
[	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		112.076			
[	As	75					
[	Se	82					
[	Y	89					
[	Mo	98					
[	Ag	107					
[	Ag	109					
[	Cd	111					
[	Cd	114					
[>	In	115		100.008			
[	Sb	121					
[	Ba	135					
[>	Tb	159		82.788			
[	Ho	165					
[	Tl	205					
[	Pb	208					
[	Bi	209					
[	Th	232					
[	U	238					
[	Na	23					
[	Mg	24					
[	K	39					
[	Ca	44					
[	Fe	54					
[>	Sc-1	45					
[	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: Blank

Sample Date/Time: Tuesday, December 10, 2013 12:54:43

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312035

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\Blank.46509

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
[>	Li	6	8266.577	2.629	8266.577			ug/L
[	Be	9	3.333	0.000	-0.001	-0.08396	1.71	ug/L
[	Al	27	1725.794	5.168	-0.008	-0.56023	3.10	ug/L
[>	Sc	45	140312.632	5.327	140312.632			ug/L
[	V	51	-3189.258	46.940	-0.000	-0.01190	3463.03	ug/L
[	Cr	52	7145.773	9.320	-0.001	-0.04293	722.35	ug/L
[	Mn	55	1528.764	36.517	-0.004	-0.11336	84.31	ug/L
[	Co	59	32.778	25.593	-0.000	-0.00339	41.03	ug/L
[	Ni	60	24.267	37.204	-0.000	-0.05661	17.55	ug/L
[	Cu	65	47.222	16.302	-0.001	-0.14981	5.04	ug/L
[	Zn	66	181.669	3.308	-0.005	-0.77137	3.11	ug/L
[>	Ge	72	93256.863	3.963	93256.863			ug/L
[	As	75	-164.691	52.577	0.002	0.17496	56.91	ug/L
[	Se	82	8.778	36.490	-0.000	-0.30703	14.47	ug/L
[	Y	89	23.333	14.286	-5.556			ug/L
[	Mo	98	268.103	8.551	0.000	0.03703	32.58	ug/L
[	Ag	107	10.556	9.116	-0.000	-0.00428	6.04	ug/L
[	Ag	109	10.556	9.116	-0.000	-0.00291	12.56	ug/L
[	Cd	111	7.334	23.823	-0.000	-0.00207	124.64	ug/L
[	Cd	114	27.301	21.220	-0.000	-0.01283	26.40	ug/L
[>	In	115	282542.323	1.579	282542.323			ug/L
[	Sb	121	62.778	6.681	-0.000	-0.00264	57.08	ug/L
[	Ba	135	2.778	34.641	-0.000	-0.03171	6.41	ug/L
[>	Tb	159	198679.341	2.664	198679.341			ug/L
[	Ho	165	8.333	52.915	-0.000			ug/L
[	Tl	205	696.706	13.907	0.003	0.36511	18.98	ug/L
[	Pb	208	127.778	8.685	-0.000	-0.00810	62.84	ug/L
[	Bi	209	12.778	27.152	0.000			ug/L
[	Th	232	5.556	17.321	-0.000	-0.00741	5.22	ug/L
[	U	238	2.222	114.564	-0.000	-0.00195	58.98	ug/L
[	Na	23	3907.359	18.191	-0.147	-0.01091	4.59	mg/L
[	Mg	24	2250.961	4.453	-0.012	-0.00137	1.75	mg/L
[	K	39	735797.033	3.327	-0.702	-0.03046	66.46	mg/L
[	Ca	44	18421.603	5.274	-0.035	-0.04859	40.52	mg/L
[	Fe	54	32086.304	8.176	0.014	0.00738	225.52	mg/L
[>	Sc-1	45	140312.632	5.327	140312.632			mg/L
[	Kr	83	105.001	9.913	22.223			mg/L

Sample ID: Blank

Report Date/Time: Tuesday, December 10, 2013 12:56:20

Page 1

# QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		108.017			
[	Be	9					
[	Al	27					
[>	Sc	45		115.479			
	V	51					
	Cr	52					
	Mn	55					
	Co	59					
	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		115.341			
	As	75					
[	Se	82					
	Y	89					
[	Mo	98					
	Ag	107					
	Ag	109					
	Cd	111					
	Cd	114					
[>	In	115		101.287			
[	Sb	121					
[	Ba	135					
[>	Tb	159		88.141			
	Ho	165					
	Tl	205					
	Pb	208					
	Bi	209					
	Th	232					
[	U	238					
[	Na	23					
	Mg	24					
	K	39					
	Ca	44					
	Fe	54					
[>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: SEQ-CCV

Sample Date/Time: Tuesday, December 10, 2013 12:57:46

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID:

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\SEQ-CCV.46510

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8212.621	4.278	8212.621			ug/L
L	Be	9	3100.769	2.714	0.377	51.64353	5.00	ug/L
[	Al	27	450250.528	5.677	3.420	241.87057	3.06	ug/L
>	Sc	45	130844.816	3.430	130844.816			ug/L
	V	51	178200.974	7.115	1.385	49.54798	6.81	ug/L
	Cr	52	163489.129	5.397	1.199	49.19576	7.78	ug/L
	Mn	55	251423.062	3.336	1.907	50.46939	2.57	ug/L
	Co	59	215872.232	4.179	1.650	46.56752	2.77	ug/L
	Ni	60	47418.202	8.400	0.362	47.54972	7.09	ug/L
L	Cu	65	56586.223	2.506	0.431	48.54669	4.36	ug/L
[	Zn	66	29392.921	4.149	0.306	51.37977	3.43	ug/L
>	Ge	72	94153.400	3.674	94153.400			ug/L
	As	75	40393.968	4.476	0.433	48.97721	4.96	ug/L
L	Se	82	3969.420	3.615	0.042	49.27515	7.38	ug/L
	Y	89	39.445	6.454	10.556			ug/L
[	Mo	98	101481.472	2.143	0.356	50.02934	1.98	ug/L
	Ag	107	154624.308	2.986	0.543	50.19450	2.39	ug/L
	Ag	109	145350.976	1.518	0.510	48.90529	1.19	ug/L
	Cd	111	35742.057	0.667	0.125	49.68402	0.66	ug/L
	Cd	114	79291.312	1.895	0.278	49.10453	2.09	ug/L
>	In	115	284886.750	0.749	284886.750			ug/L
L	Sb	121	110456.526	1.460	0.387	48.91526	0.80	ug/L
[	Ba	135	24538.078	1.026	0.121	53.26442	2.03	ug/L
>	Tb	159	201855.896	1.112	201855.896			ug/L
	Ho	165	8.333	20.000	-0.000			ug/L
	Tl	205	92157.112	3.106	0.456	54.92174	2.00	ug/L
	Pb	208	123034.042	0.729	0.609	54.14694	0.77	ug/L
	Bi	209	16.111	33.254	0.000			ug/L
	Th	232	117125.383	2.136	0.580	55.01715	1.22	ug/L
L	U	238	117089.178	2.202	0.580	53.66894	1.82	ug/L
[	Na	23	8626504.454	5.768	65.883	4.89095	9.03	mg/L
	Mg	24	5546749.662	4.287	42.426	5.00322	7.13	mg/L
	K	39	16289774.051	8.808	118.648	5.14847	9.97	mg/L
	Ca	44	502070.720	2.173	3.674	5.06536	5.45	mg/L
	Fe	54	1310543.403	2.267	9.807	5.28224	3.89	mg/L
>	Sc-1	45	130844.816	3.430	130844.816			mg/L
	Kr	83	93.334	13.947	10.556			mg/L

Sample ID: SEQ-CCV

Report Date/Time: Tuesday, December 10, 2013 12:59:21

Page 1



## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		107.312			
[	Be	9	103.287				
[	Al	27	96.748				
[>	Sc	45		107.687			
[	V	51	99.096				
[	Cr	52	98.392				
[	Mn	55	100.939				
[	Co	59	93.135				
[	Ni	60	95.099				
[	Cu	65	97.093				
[	Zn	66	102.760				
[>	Ge	72		116.450			
[	As	75	97.954				
[	Se	82	98.550				
[	Y	89					
[	Mo	98	100.059				
[	Ag	107	100.389				
[	Ag	109	97.811				
[	Cd	111	99.368				
[	Cd	114					
[>	In	115		102.127			
[	Sb	121	97.831				
[	Ba	135	106.529				
[>	Tb	159		89.550			
[	Ho	165					
[	Tl	205	109.843				
[	Pb	208	108.294				
[	Bi	209					
[	Th	232	110.034				
[	U	238	107.338				
[	Na	23	97.819				
[	Mg	24	100.064				
[	K	39	102.969				
[	Ca	44	101.307				
[	Fe	54	105.645				
[>	Sc-1	45					
[	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: SEQ-CCB

Sample Date/Time: Tuesday, December 10, 2013 13:01:02

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID:

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\SEQ-CCB.46511

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8309.411	2.442	8309.411			ug/L
[	Be	9	4.444	57.282	-0.000	-0.06661	60.81	ug/L
[	Al	27	2474.938	10.180	-0.001	-0.04032	606.01	ug/L
>	Sc	45	126988.244	7.318	126988.244			ug/L
	V	51	-1318.277	76.498	0.013	0.44894	59.00	ug/L
	Cr	52	6773.672	3.870	0.001	0.04949	172.85	ug/L
	Mn	55	1905.757	28.295	0.000	0.00340	4043.29	ug/L
	Co	59	59.445	20.283	0.000	0.00325	67.47	ug/L
	Ni	60	51.756	20.088	-0.000	-0.02641	28.38	ug/L
[	Cu	65	165.558	9.568	-0.000	-0.04060	42.28	ug/L
[	Zn	66	377.234	12.199	-0.002	-0.40234	26.67	ug/L
>	Ge	72	91291.689	5.786	91291.689			ug/L
	As	75	-279.673	32.104	0.000	0.02428	479.19	ug/L
[	Se	82	33.667	60.688	0.000	0.00912	2615.39	ug/L
	Y	89	28.889	13.324	0.000			ug/L
[	Mo	98	423.728	18.752	0.001	0.10977	37.43	ug/L
	Ag	107	42.778	23.485	0.000	0.00597	58.11	ug/L
	Ag	109	36.111	11.615	0.000	0.00545	22.24	ug/L
	Cd	111	6.667	106.765	-0.000	-0.00317	312.02	ug/L
	Cd	114	14.309	131.512	-0.000	-0.02100	55.85	ug/L
>	In	115	289520.934	1.815	289520.934			ug/L
[	Sb	121	306.674	12.850	0.001	0.10308	16.65	ug/L
[	Ba	135	15.556	32.733	-0.000	-0.00427	262.41	ug/L
>	Tb	159	203879.025	2.119	203879.025			ug/L
	Ho	165	5.556	34.641	-0.000			ug/L
	Tl	205	336.120	17.618	0.001	0.13994	23.66	ug/L
	Pb	208	151.112	5.094	0.000	0.00066	714.95	ug/L
	Bi	209	7.778	44.607	-0.000			ug/L
	Th	232	43.889	28.754	0.000	0.01037	56.41	ug/L
[	U	238	27.222	23.179	0.000	0.00942	32.08	ug/L
[	Na	23	17438.793	5.744	-0.037	-0.00277	27.38	mg/L
	Mg	24	4045.199	4.650	0.004	0.00050	35.14	mg/L
	K	39	772528.540	1.228	0.147	0.00637	363.36	mg/L
	Ca	44	18025.965	2.137	-0.025	-0.03397	38.91	mg/L
	Fe	54	29952.298	9.393	0.020	0.01084	93.87	mg/L
>	Sc-1	45	126988.244	7.318	126988.244			mg/L
	Kr	83	96.112	19.023	13.334			mg/L

Sample ID: SEQ-CCB

Report Date/Time: Tuesday, December 10, 2013 13:02:38

Page 1

# QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[> Li	6		108.577			
[ Be	9					
[ Al	27					
[> Sc	45		104.513			
[ V	51					
[ Cr	52					
[ Mn	55					
[ Co	59					
[ Ni	60					
[ Cu	65					
[ Zn	66					
[> Ge	72		112.911			
[ As	75					
[ Se	82					
[ Y	89					
[ Mo	98					
[ Ag	107					
[ Ag	109					
[ Cd	111					
[ Cd	114					
[> In	115		103.788			
[ Sb	121					
[ Ba	135					
[> Tb	159		90.448			
[ Ho	165					
[ Tl	205					
[ Pb	208					
[ Bi	209					
[ Th	232					
[ U	238					
[ Na	23					
[ Mg	24					
[ K	39					
[ Ca	44					
[ Fe	54					
[> Sc-1	45					
[ Kr	83					

## Method 200.8 - Summary Report

### Sample ID: C131107-10 @10X

Sample Date/Time: Tuesday, December 10, 2013 13:04:21

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312035

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-10 @10X.46512

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8395.087	4.712	8395.087			ug/L
[	Be	9	6.667	25.000	-0.000	-0.02942	110.39	ug/L
[	Al	27	42425.366	4.517	0.280	19.76941	2.07	ug/L
>	Sc	45	141501.241	2.596	141501.241			ug/L
	V	51	-2989.497	57.044	0.002	0.05816	736.30	ug/L
	Cr	52	7760.928	2.008	0.003	0.10822	65.42	ug/L
	Mn	55	1030298.711	3.538	7.265	192.28114	1.34	ug/L
	Co	59	1416.828	6.275	0.010	0.27291	7.59	ug/L
	Ni	60	7.572	950.504	-0.001	-0.07152	93.20	ug/L
[	Cu	65	6438.316	2.593	0.044	4.93739	3.65	ug/L
[	Zn	66	281799.762	5.091	3.109	522.48837	3.22	ug/L
>	Ge	72	90428.732	2.875	90428.732			ug/L
	As	75	-180.927	110.000	0.001	0.14240	176.32	ug/L
[	Se	82	22.334	59.121	-0.000	-0.13011	128.91	ug/L
	Y	89	707.818	8.193	678.929			ug/L
[	Mo	98	2823.622	2.386	0.010	1.35533	4.36	ug/L
	Ag	107	11.111	22.913	-0.000	-0.00399	20.95	ug/L
	Ag	109	11.111	48.218	-0.000	-0.00262	69.58	ug/L
	Cd	111	1877.713	1.656	0.007	2.70516	3.34	ug/L
	Cd	114	4050.952	1.673	0.015	2.58287	3.24	ug/L
>	In	115	273799.571	1.820	273799.571			ug/L
[	Sb	121	188.892	3.566	0.000	0.05645	7.08	ug/L
[	Ba	135	882.840	5.454	0.005	2.04912	4.28	ug/L
>	Tb	159	185403.484	1.485	185403.484			ug/L
	Ho	165	19.444	42.282	0.000			ug/L
	Tl	205	163.336	15.238	0.000	0.04777	36.21	ug/L
	Pb	208	638.347	2.321	0.003	0.24092	3.09	ug/L
	Bi	209	10.000	0.000	-0.000			ug/L
	Th	232	23.333	37.797	0.000	0.00193	243.82	ug/L
[	U	238	850.058	0.196	0.005	0.42134	1.69	ug/L
[	Na	23	1915586.877	5.584	13.358	0.99168	4.01	mg/L
	Mg	24	2055468.554	4.623	14.494	1.70923	2.34	mg/L
	K	39	1571969.396	2.242	5.154	0.22363	8.78	mg/L
	Ca	44	2413014.674	9.051	16.877	23.26596	7.97	mg/L
	Fe	54	104426.998	7.714	0.522	0.28114	10.38	mg/L
>	Sc-1	45	141501.241	2.596	141501.241			mg/L
	Kr	83	108.890	13.018	26.112			mg/L

Sample ID: C131107-10 @10X

Report Date/Time: Tuesday, December 10, 2013 13:05:57

Page 1

# QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		109.696			
[	Be	9					
[	Al	27					
[>	Sc	45		116.458			
[	V	51					
[	Cr	52					
[	Mn	55					
[	Co	59					
[	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		111.843			
[	As	75					
[	Se	82					
[	Y	89					
[	Mo	98					
[	Ag	107					
[	Ag	109					
[	Cd	111					
[	Cd	114					
[>	In	115		98.152			
[	Sb	121					
[	Ba	135					
[>	Tb	159		82.252			
[	Ho	165					
[	Tl	205					
[	Pb	208					
[	Bi	209					
[	Th	232					
[	U	238					
[	Na	23					
[	Mg	24					
[	K	39					
[	Ca	44					
[	Fe	54					
[>	Sc-1	45					
[	Kr	83					

## Method 200.8 - Summary Report

**Sample ID: C131107-13 @10X**

Sample Date/Time: Tuesday, December 10, 2013 13:07:24

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312035

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-13 @10X.46513

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
[>	Li	6	8752.247	5.371	8752.247			ug/L
[	Be	9	3.889	89.214	-0.001	-0.07750	69.97	ug/L
[	Al	27	25354.174	4.644	0.169	11.92239	6.96	ug/L
[>	Sc	45	134390.884	1.699	134390.884			ug/L
	V	51	-3950.386	14.854	-0.007	-0.24231	70.64	ug/L
	Cr	52	8197.077	10.328	0.009	0.36267	81.90	ug/L
	Mn	55	976315.023	6.368	7.255	192.00311	7.69	ug/L
	Co	59	1452.392	9.944	0.010	0.29551	11.97	ug/L
	Ni	60	57.617	156.101	-0.000	-0.02245	393.66	ug/L
[	Cu	65	4019.070	3.138	0.028	3.17961	3.15	ug/L
[	Zn	66	271199.108	4.473	3.151	529.59735	7.38	ug/L
[>	Ge	72	86033.181	4.092	86033.181			ug/L
	As	75	-295.613	43.085	-0.000	-0.02158	848.65	ug/L
[	Se	82	39.334	20.567	0.000	0.11755	79.64	ug/L
	Y	89	440.016	7.077	411.127			ug/L
[	Mo	98	2761.607	2.839	0.010	1.34589	3.80	ug/L
	Ag	107	11.111	45.826	-0.000	-0.00391	45.96	ug/L
	Ag	109	9.444	56.727	-0.000	-0.00314	60.37	ug/L
	Cd	111	1777.408	2.927	0.007	2.59991	1.36	ug/L
	Cd	114	3924.453	2.500	0.014	2.54102	2.08	ug/L
[>	In	115	269484.262	1.947	269484.262			ug/L
[	Sb	121	108.890	8.704	0.000	0.02034	21.76	ug/L
[	Ba	135	935.626	4.526	0.005	2.17364	4.44	ug/L
[>	Tb	159	185475.763	0.259	185475.763			ug/L
	Ho	165	12.222	34.317	0.000			ug/L
	Tl	205	145.002	12.800	0.000	0.03566	33.18	ug/L
	Pb	208	418.894	2.527	0.002	0.13554	3.51	ug/L
	Bi	209	14.444	35.251	0.000			ug/L
	Th	232	15.000	33.333	-0.000	-0.00239	106.35	ug/L
[	U	238	841.723	3.975	0.005	0.41697	4.18	ug/L
[	Na	23	1925291.065	4.453	14.147	1.05027	3.15	mg/L
	Mg	24	2110278.928	1.532	15.676	1.84862	1.18	mg/L
	K	39	1625351.962	6.204	6.141	0.26647	14.99	mg/L
	Ca	44	2455657.263	0.531	18.108	24.96284	1.46	mg/L
	Fe	54	74392.968	3.535	0.338	0.18198	8.60	mg/L
[>	Sc-1	45	134390.884	1.699	134390.884			mg/L
	Kr	83	82.778	7.071	-0.000			mg/L

## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		114.363			
[	Be	9					
[	Al	27					
>	Sc	45		110.606			
	V	51					
	Cr	52					
	Mn	55					
	Co	59					
	Ni	60					
[	Cu	65					
[	Zn	66					
>	Ge	72		106.407			
	As	75					
[	Se	82					
	Y	89					
[	Mo	98					
	Ag	107					
	Ag	109					
	Cd	111					
	Cd	114					
>	In	115		96.605			
[	Sb	121					
[	Ba	135					
>	Tb	159		82.284			
	Ho	165					
	Tl	205					
	Pb	208					
	Bi	209					
	Th	232					
[	U	238					
[	Na	23					
	Mg	24					
	K	39					
	Ca	44					
	Fe	54					
>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: C131107-15 @10X

Sample Date/Time: Tuesday, December 10, 2013 13:10:27

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312035

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-15 @10X.46514

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	9184.544	7.098	9184.544			ug/L
[	Be	9	4.444	86.603	-0.001	-0.07025	85.12	ug/L
[	Al	27	15497.567	5.842	0.089	6.29254	4.96	ug/L
>	Sc	45	141918.437	3.630	141918.437			ug/L
	V	51	-3771.822	13.980	-0.004	-0.14372	117.79	ug/L
	Cr	52	8326.696	10.683	0.006	0.26549	96.47	ug/L
	Mn	55	854941.177	4.609	6.011	159.07996	3.93	ug/L
	Co	59	1110.099	6.102	0.007	0.21079	3.59	ug/L
	Ni	60	91.911	148.845	0.000	0.00289	4272.13	ug/L
[	Cu	65	2208.724	2.104	0.014	1.56562	3.70	ug/L
[	Zn	66	225922.727	1.012	2.548	428.21634	3.11	ug/L
>	Ge	72	88511.876	3.973	88511.876			ug/L
	As	75	-173.147	80.800	0.001	0.15398	109.78	ug/L
[	Se	82	30.556	90.094	-0.000	-0.00281	13406.17	ug/L
	Y	89	251.672	4.343	222.783			ug/L
[	Mo	98	2501.255	4.570	0.008	1.16662	5.86	ug/L
	Ag	107	13.889	18.330	-0.000	-0.00313	26.65	ug/L
	Ag	109	12.222	20.830	-0.000	-0.00229	37.01	ug/L
	Cd	111	1487.439	3.360	0.005	2.10198	4.29	ug/L
	Cd	114	3327.297	2.180	0.012	2.07727	1.33	ug/L
>	In	115	278727.058	0.893	278727.058			ug/L
[	Sb	121	120.001	14.633	0.000	0.02372	35.31	ug/L
[	Ba	135	882.840	3.400	0.005	1.98897	4.11	ug/L
>	Tb	159	191000.833	0.867	191000.833			ug/L
	Ho	165	11.667	62.270	0.000			ug/L
	Tl	205	145.002	15.549	0.000	0.03304	45.49	ug/L
	Pb	208	336.670	1.980	0.001	0.09144	2.74	ug/L
	Bi	209	12.778	19.924	0.000			ug/L
	Th	232	12.222	7.873	-0.000	-0.00398	10.94	ug/L
[	U	238	777.826	4.414	0.004	0.37392	5.00	ug/L
[	Na	23	2009145.033	4.188	13.988	1.03842	4.09	mg/L
	Mg	24	2228233.399	4.286	15.675	1.84856	3.06	mg/L
	K	39	1712661.861	5.711	6.118	0.26546	13.91	mg/L
	Ca	44	2419050.873	2.578	16.900	23.29717	5.66	mg/L
	Fe	54	54997.071	7.046	0.171	0.09221	8.10	mg/L
>	Sc-1	45	141918.437	3.630	141918.437			mg/L
	Kr	83	97.223	17.172	14.445			mg/L

Sample ID: C131107-15 @10X

Report Date/Time: Tuesday, December 10, 2013 13:12:03

Page 1



## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		120.012			
[	Be	9					
[	Al	27					
[>	Sc	45		116.801			
	V	51					
	Cr	52					
	Mn	55					
	Co	59					
	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		109.473			
	As	75					
[	Se	82					
	Y	89					
[	Mo	98					
	Ag	107					
	Ag	109					
	Cd	111					
	Cd	114					
[>	In	115		99.919			
[	Sb	121					
[	Ba	135					
[>	Tb	159		84.735			
	Ho	165					
	Tl	205					
	Pb	208					
	Bi	209					
	Th	232					
[	U	238					
[	Na	23					
	Mg	24					
	K	39					
	Ca	44					
	Fe	54					
[>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: C131107-17 @10X

Sample Date/Time: Tuesday, December 10, 2013 13:13:30

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312035

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-17 @10X.46515

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8667.674	1.779	8667.674			ug/L
[	Be	9	5.000	66.667	-0.000	-0.06037	87.46	ug/L
[	Al	27	8877.433	7.109	0.044	3.09050	14.95	ug/L
>	Sc	45	139172.218	2.966	139172.218			ug/L
	V	51	-3633.650	71.310	-0.003	-0.11501	560.91	ug/L
	Cr	52	8120.314	10.948	0.006	0.25198	104.42	ug/L
	Mn	55	864360.558	3.266	6.202	164.13575	5.58	ug/L
	Co	59	1015.083	11.225	0.007	0.19651	14.89	ug/L
	Ni	60	-72.127	88.172	-0.001	-0.14887	41.77	ug/L
[	Cu	65	1031.197	10.947	0.006	0.64518	10.81	ug/L
[	Zn	66	205519.645	6.111	2.320	389.87384	4.99	ug/L
>	Ge	72	88311.872	1.631	88311.872			ug/L
	As	75	-146.210	82.487	0.002	0.18398	84.28	ug/L
[	Se	82	22.667	26.836	-0.000	-0.11597	74.12	ug/L
	Y	89	168.336	8.104	139.447			ug/L
[	Mo	98	2181.812	1.805	0.007	1.01018	4.41	ug/L
	Ag	107	15.556	26.964	-0.000	-0.00257	49.38	ug/L
	Ag	109	10.556	24.119	-0.000	-0.00284	32.84	ug/L
	Cd	111	1205.821	1.973	0.004	1.70841	0.86	ug/L
	Cd	114	2707.824	2.723	0.010	1.69325	4.65	ug/L
>	In	115	277586.567	2.345	277586.567			ug/L
[	Sb	121	93.334	12.500	0.000	0.01181	48.47	ug/L
[	Ba	135	881.173	3.495	0.005	2.03856	1.99	ug/L
>	Tb	159	186030.432	2.100	186030.432			ug/L
	Ho	165	4.444	57.282	-0.000			ug/L
	Tl	205	102.223	33.507	0.000	0.00747	278.56	ug/L
	Pb	208	275.002	3.374	0.001	0.06621	9.17	ug/L
	Bi	209	3.889	49.487	-0.000			ug/L
	Th	232	5.000	57.735	-0.000	-0.00750	19.65	ug/L
[	U	238	778.382	1.903	0.004	0.38440	4.00	ug/L
[	Na	23	2494719.937	6.274	17.740	1.31698	3.75	mg/L
	Mg	24	2682984.576	1.663	19.259	2.27114	2.58	mg/L
	K	39	1918760.118	5.311	7.833	0.33988	10.64	mg/L
	Ca	44	2631217.399	3.285	18.738	25.83125	0.79	mg/L
	Fe	54	47260.803	10.784	0.123	0.06631	22.92	mg/L
>	Sc-1	45	139172.218	2.966	139172.218			mg/L
	Kr	83	99.445	16.450	16.667			mg/L

# QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		113.258			
[	Be	9					
[	Al	27					
[>	Sc	45		114.541			
	V	51					
	Cr	52					
	Mn	55					
	Co	59					
	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		109.225			
	As	75					
[	Se	82					
	Y	89					
[	Mo	98					
	Ag	107					
	Ag	109					
	Cd	111					
	Cd	114					
[>	In	115		99.510			
[	Sb	121					
[	Ba	135					
[>	Tb	159		82.530			
	Ho	165					
	Tl	205					
	Pb	208					
	Bi	209					
	Th	232					
[	U	238					
[	Na	23					
	Mg	24					
	K	39					
	Ca	44					
	Fe	54					
[>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

**Sample ID: C131107-20 @5X**

Sample Date/Time: Tuesday, December 10, 2013 13:16:33

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312035

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-20 @5X.46516

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8793.978	6.529	8793.978			ug/L
[	Be	9	5.556	96.437	-0.000	-0.05520	138.38	ug/L
[	Al	27	32677.334	9.072	0.205	14.48212	9.61	ug/L
>	Sc	45	145225.674	0.561	145225.674			ug/L
	V	51	-9640.117	18.158	-0.044	-1.56497	28.29	ug/L
	Cr	52	9370.953	9.711	0.012	0.50455	50.97	ug/L
	Mn	55	183561.492	3.076	1.249	33.05199	2.83	ug/L
	Co	59	311.119	12.783	0.002	0.05052	14.83	ug/L
	Ni	60	-14.213	319.393	-0.001	-0.09241	44.53	ug/L
[	Cu	65	367.789	5.915	0.001	0.09724	17.33	ug/L
[	Zn	66	19632.467	2.658	0.202	34.01393	1.96	ug/L
>	Ge	72	93965.125	1.809	93965.125			ug/L
	As	75	-163.536	50.733	0.002	0.17526	56.37	ug/L
[	Se	82	23.889	73.840	-0.000	-0.12184	177.97	ug/L
	Y	89	320.008	6.400	291.119			ug/L
[	Mo	98	580.590	2.610	0.001	0.19337	5.13	ug/L
	Ag	107	18.889	10.189	-0.000	-0.00154	43.40	ug/L
	Ag	109	10.000	16.667	-0.000	-0.00309	17.49	ug/L
	Cd	111	129.722	12.888	0.000	0.16981	13.04	ug/L
	Cd	114	258.757	14.085	0.001	0.13232	18.17	ug/L
>	In	115	281859.131	0.805	281859.131			ug/L
[	Sb	121	73.889	18.232	0.000	0.00245	256.24	ug/L
[	Ba	135	5709.831	3.350	0.030	13.11538	2.80	ug/L
>	Tb	159	190299.375	0.918	190299.375			ug/L
	Ho	165	14.444	29.038	0.000			ug/L
	Tl	205	83.889	16.897	-0.000	-0.00534	176.42	ug/L
	Pb	208	212.779	7.107	0.000	0.03409	18.25	ug/L
	Bi	209	11.667	14.286	0.000			ug/L
	Th	232	14.444	63.549	-0.000	-0.00283	164.78	ug/L
[	U	238	243.894	12.828	0.001	0.11563	13.14	ug/L
[	Na	23	1619013.180	5.308	10.974	0.81465	5.44	mg/L
	Mg	24	1914843.764	4.779	13.156	1.55147	4.38	mg/L
	K	39	1605766.138	8.190	5.093	0.22101	17.23	mg/L
	Ca	44	1269029.125	1.038	8.571	11.81573	0.85	mg/L
	Fe	54	43574.324	2.453	0.084	0.04525	7.54	mg/L
>	Sc-1	45	145225.674	0.561	145225.674			mg/L
	Kr	83	100.001	18.028	17.222			mg/L

Sample ID: C131107-20 @5X

Report Date/Time: Tuesday, December 10, 2013 13:18:09

Page 1

# QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		114.909			
[	Be	9					
[	Al	27					
[>	Sc	45		119.523			
	V	51					
	Cr	52					
	Mn	55					
	Co	59					
	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		116.217			
	As	75					
[	Se	82					
	Y	89					
[	Mo	98					
	Ag	107					
	Ag	109					
	Cd	111					
	Cd	114					
[>	In	115		101.042			
[	Sb	121					
[	Ba	135					
[>	Tb	159		84.424			
	Ho	165					
	Tl	205					
	Pb	208					
	Bi	209					
	Th	232					
[	U	238					
[	Na	23					
	Mg	24					
	K	39					
	Ca	44					
	Fe	54					
[>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: C131107-23 @10X

Sample Date/Time: Tuesday, December 10, 2013 13:19:36

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312035

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-23 @10X.46517

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	9377.603	6.040	9377.603			ug/L
L	Be	9	72.223	7.050	0.007	0.91837	10.64	ug/L
F	Al	27	5987850.788	3.936	37.629	2661.55317	5.56	ug/L
>	Sc	45	159274.774	5.264	159274.774			ug/L
	V	51	35144.175	5.932	0.243	8.70227	0.69	ug/L
	Cr	52	23927.549	7.440	0.098	4.02888	12.07	ug/L
	Mn	55	1193338.010	4.132	7.481	198.00270	2.29	ug/L
	Co	59	12273.765	8.524	0.077	2.16307	3.64	ug/L
	Ni	60	4035.381	10.832	0.025	3.24495	6.22	ug/L
L	Cu	65	38628.029	4.189	0.241	27.13020	1.12	ug/L
F	Zn	66	78223.455	5.230	0.878	147.53997	3.74	ug/L
>	Ge	72	88434.431	3.117	88434.431			ug/L
	As	75	13450.076	4.320	0.156	17.61115	6.28	ug/L
L	Se	82	76.112	33.078	0.000	0.58759	51.70	ug/L
	Y	89	79823.799	1.389	79794.910			ug/L
F	Mo	98	4027.295	1.880	0.015	2.08825	2.03	ug/L
	Ag	107	1752.468	4.700	0.007	0.61713	4.27	ug/L
	Ag	109	1646.328	4.005	0.006	0.60213	4.96	ug/L
	Cd	111	899.606	6.928	0.003	1.36210	7.98	ug/L
	Cd	114	1835.567	3.299	0.007	1.21967	4.51	ug/L
>	In	115	259443.537	2.448	259443.537			ug/L
L	Sb	121	401.680	7.685	0.001	0.16506	11.70	ug/L
F	Ba	135	39752.143	1.296	0.230	100.72311	1.46	ug/L
>	Tb	159	172977.463	1.463	172977.463			ug/L
	Ho	165	1376.263	3.886	0.008			ug/L
	Tl	205	498.353	2.655	0.002	0.28861	4.23	ug/L
	Pb	208	90021.701	2.029	0.520	46.22359	1.93	ug/L
	Bi	209	457.795	2.005	0.003			ug/L
	Th	232	3921.786	1.890	0.023	2.14012	0.59	ug/L
L	U	238	967.297	3.969	0.006	0.51440	3.19	ug/L
F	Na	23	9941216.823	2.956	62.424	4.63422	8.43	mg/L
	Mg	24	11725725.269	3.054	73.707	8.69213	5.31	mg/L
	K	39	10437514.069	7.799	59.679	2.58965	9.89	mg/L
	Ca	44	5815180.276	3.077	36.446	50.24167	8.18	mg/L
	Fe	54	2059219.582	2.298	12.735	6.85896	5.33	mg/L
>	Sc-1	45	159274.774	5.264	159274.774			mg/L
	Kr	83	100.001	21.795	17.222			mg/L

Sample ID: C131107-23 @10X

Report Date/Time: Tuesday, December 10, 2013 13:21:12

Page 1

# QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[> Li	6		122.535			
[ Be	9					
[ Al	27					
[> Sc	45		131.086			
[ V	51					
[ Cr	52					
[ Mn	55					
[ Co	59					
[ Ni	60					
[ Cu	65					
[ Zn	66					
[> Ge	72		109.377			
[ As	75					
[ Se	82					
[ Y	89					
[ Mo	98					
[ Ag	107					
[ Ag	109					
[ Cd	111					
[ Cd	114					
[> In	115		93.006			
[ Sb	121					
[ Ba	135					
[> Tb	159		76.739			
[ Ho	165					
[ Tl	205					
[ Pb	208					
[ Bi	209					
[ Th	232					
[ U	238					
[ Na	23					
[ Mg	24					
[ K	39					
[ Ca	44					
[ Fe	54					
[> Sc-1	45					
[ Kr	83					

## Method 200.8 - Summary Report

### Sample ID: C131107-26 @10X

Sample Date/Time: Tuesday, December 10, 2013 13:22:39

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312035

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-26 @10X.46518

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8797.302	2.855	8797.302			ug/L
[	Be	9	126.112	9.561	0.013	1.82410	9.31	ug/L
[	Al	27	17536206.321	2.088	107.378	7594.94570	2.98	ug/L
>	Sc	45	163393.734	3.969	163393.734			ug/L
	V	51	106744.994	1.922	0.677	24.20873	4.73	ug/L
	Cr	52	85104.254	3.330	0.469	19.25722	6.38	ug/L
	Mn	55	5285021.159	4.244	32.337	855.84314	2.84	ug/L
	Co	59	36588.479	1.972	0.224	6.31869	4.79	ug/L
	Ni	60	14883.309	6.439	0.091	11.92393	9.92	ug/L
[	Cu	65	83353.060	5.041	0.509	57.34175	7.43	ug/L
[	Zn	66	355033.320	5.040	3.886	653.04760	1.68	ug/L
>	Ge	72	91187.675	3.750	91187.675			ug/L
	As	75	30866.091	2.049	0.342	38.73666	4.59	ug/L
[	Se	82	54.445	38.888	0.000	0.28511	95.37	ug/L
	Y	89	191109.914	1.477	191081.025			ug/L
[	Mo	98	6496.725	2.161	0.024	3.43280	5.77	ug/L
	Ag	107	4088.003	1.389	0.016	1.45155	4.04	ug/L
	Ag	109	3932.352	7.266	0.015	1.45095	11.22	ug/L
	Cd	111	2806.826	0.618	0.011	4.27815	3.91	ug/L
	Cd	114	5908.104	2.956	0.023	3.99193	1.01	ug/L
>	In	115	259391.028	3.939	259391.028			ug/L
[	Sb	121	376.122	4.881	0.001	0.15264	8.58	ug/L
[	Ba	135	46391.021	1.940	0.264	115.64017	1.53	ug/L
>	Tb	159	175820.658	1.287	175820.658			ug/L
	Ho	165	3215.272	2.817	0.018			ug/L
	Tl	205	483.908	10.080	0.002	0.27296	11.91	ug/L
	Pb	208	465975.496	1.601	2.650	235.69609	2.60	ug/L
	Bi	209	1402.380	4.561	0.008			ug/L
	Th	232	4221.982	2.214	0.024	2.26787	3.18	ug/L
[	U	238	1297.357	2.702	0.007	0.67999	3.78	ug/L
[	Na	23	5079260.028	7.726	30.903	2.29412	6.10	mg/L
	Mg	24	10742329.232	5.494	65.698	7.74759	2.46	mg/L
	K	39	11591521.216	8.894	65.222	2.83018	14.08	mg/L
	Ca	44	2827885.873	5.962	17.132	23.61676	2.50	mg/L
	Fe	54	6002057.108	7.952	36.503	19.66087	6.08	mg/L
>	Sc-1	45	163393.734	3.969	163393.734			mg/L
	Kr	83	133.335	21.687	50.556			mg/L

Sample ID: C131107-26 @10X

Report Date/Time: Tuesday, December 10, 2013 13:24:15

Page 1



# QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[> Li	6		114.952			
[ Be	9					
[ Al	27					
[> Sc	45		134.476			
[ V	51					
[ Cr	52					
[ Mn	55					
[ Co	59					
[ Ni	60					
[ Cu	65					
[ Zn	66					
[> Ge	72		112.782			
[ As	75					
[ Se	82					
[ Y	89					
[ Mo	98					
[ Ag	107					
[ Ag	109					
[ Cd	111					
[ Cd	114					
[> In	115		92.987			
[ Sb	121					
[ Ba	135					
[> Tb	159		78.000			
[ Ho	165					
[ Tl	205					
[ Pb	208					
[ Bi	209					
[ Th	232					
[ U	238					
[ Na	23					
[ Mg	24					
[ K	39					
[ Ca	44					
[ Fe	54					
[> Sc-1	45					
[ Kr	83					

## Method 200.8 - Summary Report

### Sample ID: C131107-29 @10X

Sample Date/Time: Tuesday, December 10, 2013 13:25:42

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312035

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-29 @10X.46519

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8722.205	5.446	8722.205			ug/L
[	Be	9	4.444	43.301	-0.001	-0.07032	36.66	ug/L
[	Al	27	397408.218	7.131	2.740	193.77498	11.83	ug/L
>	Sc	45	144534.964	5.136	144534.964			ug/L
	V	51	-1496.747	71.043	0.012	0.43576	61.69	ug/L
	Cr	52	7732.003	1.880	0.001	0.05702	266.90	ug/L
	Mn	55	37452.467	3.088	0.244	6.46527	3.72	ug/L
	Co	59	493.909	11.097	0.003	0.08671	14.04	ug/L
	Ni	60	-392.346	7.255	-0.003	-0.43801	9.88	ug/L
[	Cu	65	1471.285	8.071	0.009	0.96201	13.71	ug/L
[	Zn	66	3952.917	3.482	0.039	6.57919	4.04	ug/L
>	Ge	72	86522.070	1.424	86522.070			ug/L
	As	75	166.725	46.415	0.005	0.59105	17.41	ug/L
[	Se	82	20.445	110.634	-0.000	-0.14171	216.69	ug/L
	Y	89	3579.358	2.512	3550.469			ug/L
[	Mo	98	1525.011	2.375	0.005	0.72575	3.47	ug/L
	Ag	107	43.333	36.690	0.000	0.00766	76.09	ug/L
	Ag	109	42.778	21.458	0.000	0.00924	38.26	ug/L
	Cd	111	114.875	11.636	0.000	0.16197	12.61	ug/L
	Cd	114	227.110	17.246	0.001	0.12358	20.23	ug/L
>	In	115	261015.415	1.077	261015.415			ug/L
[	Sb	121	93.890	1.025	0.000	0.01474	2.50	ug/L
[	Ba	135	1765.249	2.361	0.010	4.45230	2.55	ug/L
>	Tb	159	172382.651	1.821	172382.651			ug/L
	Ho	165	67.223	25.325	0.000			ug/L
	Tl	205	80.001	25.345	-0.000	-0.00271	491.08	ug/L
	Pb	208	2798.021	1.259	0.016	1.37866	2.50	ug/L
	Bi	209	23.889	8.056	0.000			ug/L
	Th	232	198.892	9.998	0.001	0.09946	12.13	ug/L
[	U	238	924.513	3.856	0.005	0.49328	3.41	ug/L
[	Na	23	2049732.249	3.697	14.024	1.04114	5.09	mg/L
	Mg	24	2130979.581	3.595	14.727	1.73675	3.13	mg/L
	K	39	1704553.921	3.611	5.853	0.25398	13.46	mg/L
	Ca	44	2596707.523	5.278	17.806	24.54615	3.83	mg/L
	Fe	54	141431.001	5.046	0.764	0.41160	9.10	mg/L
>	Sc-1	45	144534.964	5.136	144534.964			mg/L
	Kr	83	91.112	14.672	8.333			mg/L

# QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		113.971			
[	Be	9					
[	Al	27					
[>	Sc	45		118.954			
	V	51					
	Cr	52					
	Mn	55					
	Co	59					
	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		107.012			
	As	75					
[	Se	82					
	Y	89					
[	Mo	98					
	Ag	107					
	Ag	109					
	Cd	111					
	Cd	114					
[>	In	115		93.569			
[	Sb	121					
[	Ba	135					
[>	Tb	159		76.475			
	Ho	165					
	Tl	205					
	Pb	208					
	Bi	209					
	Th	232					
[	U	238					
[	Na	23					
	Mg	24					
	K	39					
	Ca	44					
	Fe	54					
[>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: C131107-31 @10X

Sample Date/Time: Tuesday, December 10, 2013 13:28:45

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312035

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\C131107-31 @10X.46520

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	9264.089	3.495	9264.089			ug/L
[	Be	9	10.000	33.333	0.000	0.00974	558.42	ug/L
[	Al	27	2483408.436	1.650	16.378	1158.40758	5.26	ug/L
>	Sc	45	151683.317	4.629	151683.317			ug/L
	V	51	9412.093	7.164	0.085	3.03861	8.52	ug/L
	Cr	52	11969.785	0.962	0.027	1.09855	11.09	ug/L
	Mn	55	736204.983	7.729	4.836	127.99062	5.01	ug/L
	Co	59	2950.141	3.068	0.019	0.54034	7.52	ug/L
	Ni	60	610.154	28.173	0.003	0.45433	38.34	ug/L
[	Cu	65	21328.078	5.841	0.139	15.64472	3.63	ug/L
[	Zn	66	37522.511	5.346	0.427	71.82260	1.79	ug/L
>	Ge	72	86478.511	5.073	86478.511			ug/L
	As	75	794.857	17.345	0.012	1.40984	9.93	ug/L
[	Se	82	89.446	23.841	0.001	0.79622	32.95	ug/L
	Y	89	20827.425	0.928	20798.536			ug/L
[	Mo	98	2326.804	5.049	0.008	1.16782	8.16	ug/L
	Ag	107	629.476	6.830	0.002	0.21678	6.08	ug/L
	Ag	109	591.139	3.744	0.002	0.21226	6.03	ug/L
	Cd	111	1224.898	5.365	0.005	1.86104	7.68	ug/L
	Cd	114	2660.809	2.992	0.010	1.78166	1.90	ug/L
>	In	115	259298.437	2.623	259298.437			ug/L
[	Sb	121	202.225	3.331	0.001	0.06784	6.92	ug/L
[	Ba	135	15316.538	3.508	0.090	39.44377	2.61	ug/L
>	Tb	159	170070.122	2.024	170070.122			ug/L
	Ho	165	340.565	4.414	0.002			ug/L
	Tl	205	149.446	13.765	0.000	0.04751	33.24	ug/L
	Pb	208	65988.798	1.230	0.387	34.45913	3.26	ug/L
	Bi	209	186.669	7.308	0.001			ug/L
	Th	232	770.603	4.060	0.004	0.41963	3.05	ug/L
[	U	238	533.912	1.719	0.003	0.28766	3.79	ug/L
[	Na	23	2041258.170	2.362	13.293	0.98686	2.98	mg/L
	Mg	24	2535011.114	5.299	16.697	1.96904	5.36	mg/L
	K	39	3806434.029	3.128	19.179	0.83223	8.84	mg/L
	Ca	44	2662679.802	8.347	17.368	23.94210	3.82	mg/L
	Fe	54	590045.903	11.634	3.666	1.97433	7.44	mg/L
>	Sc-1	45	151683.317	4.629	151683.317			mg/L
	Kr	83	97.223	9.748	14.445			mg/L

Sample ID: C131107-31 @10X

Report Date/Time: Tuesday, December 10, 2013 13:30:21

Page 1

# QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		121.051			
[	Be	9					
[	Al	27					
[>	Sc	45		124.838			
[	V	51					
[	Cr	52					
[	Mn	55					
[	Co	59					
[	Ni	60					
[	Cu	65					
[	Zn	66					
[>	Ge	72		106.958			
[	As	75					
[	Se	82					
[	Y	89					
[	Mo	98					
[	Ag	107					
[	Ag	109					
[	Cd	111					
[	Cd	114					
[>	In	115		92.954			
[	Sb	121					
[	Ba	135					
[>	Tb	159		75.449			
[	Ho	165					
[	Tl	205					
[	Pb	208					
[	Bi	209					
[	Th	232					
[	U	238					
[	Na	23					
[	Mg	24					
[	K	39					
[	Ca	44					
[	Fe	54					
[>	Sc-1	45					
[	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: blank

Sample Date/Time: Tuesday, December 10, 2013 13:39:51

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID: 1312035

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\blank.46523

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
[>	Li	6	8351.697	5.146	8351.697			ug/L
[	Be	9	3.889	65.465	-0.001	-0.07582	54.70	ug/L
[	Al	27	1604.651	7.964	-0.008	-0.59262	11.62	ug/L
[>	Sc	45	135506.823	1.703	135506.823			ug/L
	V	51	-1043.288	37.732	0.015	0.53656	18.41	ug/L
	Cr	52	6816.518	10.119	-0.002	-0.07747	298.15	ug/L
	Mn	55	1365.333	36.909	-0.005	-0.13368	70.26	ug/L
	Co	59	39.445	4.879	-0.000	-0.00172	15.01	ug/L
	Ni	60	24.811	6.065	-0.000	-0.05562	2.40	ug/L
[	Cu	65	55.556	12.490	-0.001	-0.14170	4.49	ug/L
[	Zn	66	157.780	1.614	-0.005	-0.80045	1.55	ug/L
[>	Ge	72	88825.634	5.192	88825.634			ug/L
	As	75	-326.073	19.430	-0.000	-0.04599	215.66	ug/L
[	Se	82	11.333	55.883	-0.000	-0.27011	28.57	ug/L
	Y	89	32.778	24.030	3.889			ug/L
[	Mo	98	156.615	15.421	-0.000	-0.01684	75.72	ug/L
	Ag	107	17.778	39.031	-0.000	-0.00182	123.23	ug/L
	Ag	109	15.000	11.111	-0.000	-0.00130	37.23	ug/L
	Cd	111	2.868	210.351	-0.000	-0.00831	104.69	ug/L
	Cd	114	28.498	25.787	-0.000	-0.01173	36.95	ug/L
[>	In	115	276701.903	2.130	276701.903			ug/L
[	Sb	121	133.335	10.000	0.000	0.03010	16.60	ug/L
[	Ba	135	5.556	17.321	-0.000	-0.02562	7.44	ug/L
[>	Tb	159	199341.808	1.595	199341.808			ug/L
	Ho	165	5.000	33.333	-0.000			ug/L
	Tl	205	97.779	14.193	0.000	0.00053	1417.52	ug/L
	Pb	208	109.445	2.326	-0.000	-0.01649	5.06	ug/L
	Bi	209	6.111	56.773	-0.000			ug/L
	Th	232	12.222	34.317	-0.000	-0.00426	44.59	ug/L
[	U	238	5.556	45.826	-0.000	-0.00038	310.95	ug/L
[	Na	23	4147.498	10.829	-0.144	-0.01072	2.63	mg/L
	Mg	24	2315.432	10.937	-0.011	-0.00125	18.84	mg/L
	K	39	739674.035	3.949	-0.502	-0.02179	52.44	mg/L
	Ca	44	18393.713	3.291	-0.031	-0.04306	20.14	mg/L
	Fe	54	30784.243	11.125	0.011	0.00617	250.14	mg/L
[>	Sc-1	45	135506.823	1.703	135506.823			mg/L
	Kr	83	98.334	13.238	15.556			mg/L

Sample ID: blank

Report Date/Time: Tuesday, December 10, 2013 13:41:28

Page 1

## QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		109.129			
[	Be	9					
[	Al	27					
>	Sc	45		111.524			
	V	51					
	Cr	52					
	Mn	55					
	Co	59					
	Ni	60					
[	Cu	65					
[	Zn	66					
>	Ge	72		109.861			
	As	75					
[	Se	82					
	Y	89					
[	Mo	98					
	Ag	107					
	Ag	109					
	Cd	111					
	Cd	114					
>	In	115		99.193			
[	Sb	121					
[	Ba	135					
>	Tb	159		88.435			
	Ho	165					
	Tl	205					
	Pb	208					
	Bi	209					
	Th	232					
[	U	238					
[	Na	23					
	Mg	24					
	K	39					
	Ca	44					
	Fe	54					
>	Sc-1	45					
	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: SEQ-CCV

Sample Date/Time: Tuesday, December 10, 2013 13:42:54

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID:

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\SEQ-CCV.46524

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8257.118	1.145	8257.118			ug/L
L	Be	9	2669.459	4.101	0.322	44.14415	3.71	ug/L
[	Al	27	440680.429	4.038	3.326	235.27039	9.60	ug/L
>	Sc	45	132146.441	5.697	132146.441			ug/L
	V	51	175618.154	4.122	1.357	48.52703	9.73	ug/L
	Cr	52	157343.590	2.781	1.140	46.78584	4.37	ug/L
	Mn	55	249280.242	2.935	1.875	49.61657	5.49	ug/L
	Co	59	213592.986	1.686	1.621	45.74830	7.51	ug/L
	Ni	60	47566.100	4.443	0.361	47.41591	10.02	ug/L
L	Cu	65	56859.693	0.047	0.430	48.36900	5.93	ug/L
[	Zn	66	29004.998	4.042	0.302	50.79767	4.35	ug/L
>	Ge	72	93967.761	3.378	93967.761			ug/L
	As	75	39464.742	2.061	0.424	47.96527	4.38	ug/L
L	Se	82	3785.645	3.034	0.040	47.02716	5.04	ug/L
	Y	89	43.889	10.962	15.000			ug/L
[	Mo	98	99406.870	3.501	0.346	48.68000	5.57	ug/L
	Ag	107	152065.146	1.459	0.530	49.01319	1.73	ug/L
	Ag	109	145455.802	2.048	0.507	48.60673	4.00	ug/L
	Cd	111	35406.751	3.334	0.123	48.89113	5.45	ug/L
	Cd	114	78521.398	0.895	0.274	48.29007	3.28	ug/L
>	In	115	287010.497	2.358	287010.497			ug/L
L	Sb	121	110059.522	3.083	0.383	48.41104	4.85	ug/L
[	Ba	135	24632.916	2.772	0.120	52.65594	0.85	ug/L
>	Tb	159	204983.781	3.529	204983.781			ug/L
	Ho	165	5.556	96.437	-0.000			ug/L
	Tl	205	91352.038	2.943	0.445	53.63977	2.93	ug/L
	Pb	208	121609.854	1.002	0.593	52.73805	3.23	ug/L
	Bi	209	18.333	36.364	0.000			ug/L
	Th	232	116850.054	2.990	0.570	54.06334	1.46	ug/L
L	U	238	116751.185	1.893	0.570	52.72084	2.05	ug/L
[	Na	23	8325188.324	4.582	62.949	4.67315	6.76	mg/L
	Mg	24	5238500.096	2.761	39.741	4.68658	8.53	mg/L
	K	39	15151029.472	5.027	109.117	4.73490	10.76	mg/L
	Ca	44	486249.578	5.916	3.513	4.84273	2.49	mg/L
	Fe	54	1254101.042	5.343	9.276	4.99605	1.03	mg/L
>	Sc-1	45	132146.441	5.697	132146.441			mg/L
	Kr	83	111.112	7.399	28.334			mg/L

Sample ID: SEQ-CCV

Report Date/Time: Tuesday, December 10, 2013 13:44:29

Page 1



# QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[>	Li	6		107.894			
[	Be	9	88.288				
[	Al	27	94.108				
[>	Sc	45		108.759			
[	V	51	97.054				
[	Cr	52	93.572				
[	Mn	55	99.233				
[	Co	59	91.497				
[	Ni	60	94.832				
[	Cu	65	96.738				
[	Zn	66	101.595				
[>	Ge	72		116.220			
[	As	75	95.931				
[	Se	82	94.054				
[	Y	89					
[	Mo	98	97.360				
[	Ag	107	98.026				
[	Ag	109	97.213				
[	Cd	111	97.782				
[	Cd	114					
[>	In	115		102.888			
[	Sb	121	96.822				
[	Ba	135	105.312				
[>	Tb	159		90.938			
[	Ho	165					
[	Tl	205	107.280				
[	Pb	208	105.476				
[	Bi	209					
[	Th	232	108.127				
[	U	238	105.442				
[	Na	23	93.463				
[	Mg	24	93.732				
[	K	39	94.698				
[	Ca	44	96.855				
[	Fe	54	99.921				
[>	Sc-1	45					
[	Kr	83					

## Method 200.8 - Summary Report

### Sample ID: SEQ-CCB

Sample Date/Time: Tuesday, December 10, 2013 13:46:10

Sample Type: Sample

Sample Description:

Number of Replicates: 3

Batch ID:

Method File: C:\Elandata\Method\esat2010.mth

Dataset File: C:\Elandata\Dataset\Default\SEQ-CCB.46525

Sample Prep Volume (mL):

Initial Sample Quantity (mg):

Aliquot Volume (mL):

Diluted To Volume (mL):

### Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li	6	8097.469	3.487	8097.469			ug/L
[	Be	9	1.667	100.000	-0.001	-0.11055	25.77	ug/L
[	Al	27	2253.185	6.559	-0.003	-0.21441	18.66	ug/L
>	Sc	45	131326.837	9.538	131326.837			ug/L
	V	51	-1581.187	74.045	0.011	0.39825	72.48	ug/L
	Cr	52	6958.880	5.589	0.001	0.03678	255.55	ug/L
	Mn	55	1691.971	30.895	-0.002	-0.04948	287.67	ug/L
	Co	59	71.112	14.128	0.000	0.00530	13.94	ug/L
	Ni	60	58.456	10.885	-0.000	-0.02042	58.40	ug/L
	Cu	65	157.224	5.440	-0.000	-0.05247	22.54	ug/L
	Zn	66	395.568	7.588	-0.002	-0.36231	4.69	ug/L
>	Ge	72	90266.004	8.791	90266.004			ug/L
	As	75	-267.534	61.918	0.000	0.03202	711.21	ug/L
	Se	82	20.222	37.601	-0.000	-0.15943	45.65	ug/L
	Y	89	33.889	17.272	5.000			ug/L
	Mo	98	396.132	22.780	0.001	0.09796	47.79	ug/L
	Ag	107	41.667	21.166	0.000	0.00571	53.50	ug/L
	Ag	109	43.889	14.377	0.000	0.00813	23.79	ug/L
	Cd	111	14.990	34.913	0.000	0.00821	84.31	ug/L
	Cd	114	37.169	13.725	-0.000	-0.00703	44.50	ug/L
>	In	115	287359.831	2.167	287359.831			ug/L
	Sb	121	330.564	12.937	0.001	0.11481	18.43	ug/L
	Ba	135	15.556	43.301	-0.000	-0.00507	274.33	ug/L
>	Tb	159	207790.525	1.696	207790.525			ug/L
	Ho	165	7.222	48.038	-0.000			ug/L
	Tl	205	166.113	15.684	0.000	0.03797	43.54	ug/L
	Pb	208	174.445	4.903	0.000	0.00932	26.48	ug/L
	Bi	209	7.778	61.859	-0.000			ug/L
	Th	232	48.334	15.802	0.000	0.01205	32.17	ug/L
	U	238	15.556	59.010	0.000	0.00399	103.90	ug/L
	Na	23	18005.931	4.255	-0.037	-0.00275	42.44	mg/L
	Mg	24	3688.868	5.471	0.000	0.00006	242.99	mg/L
	K	39	758178.956	1.828	-0.158	-0.00687	309.16	mg/L
	Ca	44	18603.768	2.279	-0.025	-0.03407	42.53	mg/L
	Fe	54	30504.418	11.213	0.018	0.00945	190.78	mg/L
>	Sc-1	45	131326.837	9.538	131326.837			mg/L
	Kr	83	101.112	5.299	18.334			mg/L

Sample ID: SEQ-CCB

Report Date/Time: Tuesday, December 10, 2013 13:47:46

Page 1

# QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery	Dilution % Diff	Dup. Rel. % Diff
[> Li	6		105.808			
[ Be	9					
[ Al	27					
[> Sc	45		108.084			
[ V	51					
[ Cr	52					
[ Mn	55					
[ Co	59					
[ Ni	60					
[ Cu	65					
[ Zn	66					
[> Ge	72		111.642			
[ As	75					
[ Se	82					
[ Y	89					
[ Mo	98					
[ Ag	107					
[ Ag	109					
[ Cd	111					
[ Cd	114					
[> In	115		103.014			
[ Sb	121					
[ Ba	135					
[> Tb	159		92.183			
[ Ho	165					
[ Tl	205					
[ Pb	208					
[ Bi	209					
[ Th	232					
[ U	238					
[ Na	23					
[ Mg	24					
[ K	39					
[ Ca	44					
[ Fe	54					
[> Sc-1	45					
[ Kr	83					